THE FLINT

REGIONAL FOCUS

The Nordics

Denmark, Finland, Iceland, Norway, Sweden

Contents

THE FLINT

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WELCOME

Welcome to the first issue of Flint Focus – an exploration of sustainability and ESG-related topics, in the creative industries, from around the world.

For this first stop, we selected The Nordics – that part of northern Europe comprising Denmark, Finland, Iceland, Norway and Sweden. In the popular imagination, the region is a leader in sustainable practice, with energy grids powered by low-carbon energy and societies universally admired for a human-centric approach to work and life. The Nordic countries are also leaders in the tech sector and top providers of digital tools for the broadcast and streaming world.

A lot of this reputation is well deserved, but there are other issues that remain problematic – Norway's green prosperity is the result of oil revenue, the wealth of the Nordics also means its citizens are high consumers, and two of the Nordic countries – three, if you include the Faroe Islands – are still involved with whaling. Sustainability is never simple.
In the following pages, we cover multiple stories of professionals trying to solve these problems across business, tech and storytelling. We look at new media workflows, circular economy, training the next generation and sustainability finance. But ultimately these stories are all about people. About us.

In the face of the big changes ahead, we believe that sharing our stories can help each other create not just a survivable future, but a happy and prosperous one.

Let's get this future started.

Neil Howman
Publisher

Neal Romanek
Editorial Director

Scene Setting: The numbers on the Nordics

DENMARK

Population: 5,973,136
Emissions per capita[1]: 4.9T
Energy mix[2]: 37% oil, 35% biofuels & waste, 14% wind/solar, 9% natural gas, 5% coal
Sustainability wins: Copenhagen's ambitious 2025 net-zero goal, ban on new fossil fuel licenses, law taxing livestock methane emissions, leaders in wind energy
Sustainability fails: High personal consumption, still exporting hydrocarbons, top producers and consumers of meat, drinking water contamination issues
Net-zero deadline: 2050

FINLAND

Population: 5,626,414
Energy mix: 31% biofuels & waste, 27% nuclear, 22% oil, 7% coal, 4% natural gas, 4% wind/solar, 4% hydro,
CO2 emissions per capita: 6.5T
Sustainability wins: First in latest World Happiness Report (just beating Denmark), tied with Iceland for cleanest air in Europe
Sustainability fails: Forests in decline, one of few countries to still regularly burn peat, water pollution issues
Net-zero deadline: 2035

[1] Per capita emission In 2022, Our World In Data

[2] Total energy supply consumed for all uses, IEA

ICELAND

Population: 364,036
Energy mix: 70% hydro, 20% geothermal, 9% oil, 1% coal, < 1% biofuels & waste
CO2 emissions per capita: 9.5T
Sustainability wins: Zero-carbon electrical grid, tied with Finland for cleanest air in Europe
Sustainability fails: Active whaling industry, high personal consumption, has lost over half its vegetation since first settled
Net-zero deadline: 2040

NORWAY

Population: 5,509,733
Energy mix: 43% hydro, 25% oil, 16% natural gas, 8% biofuels & waste, 5% wind/solar, 3% coal
CO2 emissions per capita: 7.5T
Sustainability wins: Electricity generated almost entirely by wind and hydroelectric, very rapid adoption of electric vehicles, second most parental leave in the Nordics (61 weeks)
Sustainability fails: Main source of income is oil and gas, high personal consumption, active whaling industry, ageing water and sewage systems
Net-zero deadline: 2030

SWEDEN

Population: 10,589,835
Energy mix: 29% biofuels & waste, 27% nuclear, 19% oil, 12% hydro, 8% wind/solar, 3% coal, 2% natural gas
CO2 emissions per capita: 3.6T
Sustainability wins: One of first countries to adopt a carbon tax, low-carbon energy grid, most parental leave in the Nordics (69 weeks), mad about recycling
Sustainability fails: Government trying to roll back climate policy, waste company NMT Think Pink on trial for burying toxic waste around the country, hydrocarbons one of its biggest exports, issued licenses this year to kill 20% of its brown bear population, ageing water and sewage systems
Net-zero deadline: 2045

Bridge Technologies and Pixotope announce partnership for ST 2110 integration

Bridge Technologies, a solutions provider for service quality protection in digital media and telecommunications, and Pixotope, a developer of graphic enhancements for broadcast productions, are collaborating to enhance the capabilities of modern productions, particularly in sports broadcasting. By combining Pixotope's graphics expertise with Bridge Technologies' IP experience, the partnership between the Norwegian companies aims to assist Pixotope in transitioning to a full ST 2110 production environment.

Known for its platform that combines camera tracking, talent tracking, virtual sets, and AR/XR functionalities, Pixotope is seeking to streamline its workflows within ST 2110-based productions. This transition is expected to expand the reach and potential of Pixotope's services as more production companies adopt IP-based workflows.

At IBC2024, the companies demonstrated Pixotope's AI-driven background segmentation technology, Unreal Engine-based virtual AR elements, and an end-to-end ST 2110 workflow. The showcase highlighted the potential for future integration between Pixotope's graphics tools and Bridge Technologies' monitoring and analysis capabilities.

The partnership will leverage Bridge Technologies' expertise in IP broadcasting to facilitate this transition. Bridge Technologies' VB440 production probe, which allows multiple production professionals to access high-grade tools through a web browser, is expected to play a key role in monitoring Pixotope processes.

World’s largest heat pump planned for Helsinki

Helsinki, Finland’s capital city, is set to construct the world’s largest air-to-water heat pump as part of its plan to become carbon-neutral by 2030. The project, commissioned by Finnish energy company Helen Oy, aims to provide sustainable heating for approximately 30,000 homes while significantly reducing carbon emissions.

The heat pump, designed by German manufacturer MAN Energy Solutions, will have a heating production capacity ranging from 20 to 33 MW, depending on air temperature. It will be capable of operating in temperatures as low as -20°C (-4°F), making it suitable for Helsinki’s harsh winters. The system will use carbon dioxide as a refrigerant, which is more environmentally friendly compared to traditional options.

Set to begin operations in the 2026-2027 heating season, the plant will include the heat pump and two 50 MW electric boilers. Together, they are expected to provide 200 GWh of heat annually, reducing CO2 emissions by approximately 26,000 tonnes per year.

District heating is already widely used in Finland, with about 50% of heating and cooling energy coming from biomass sources. This project aligns with the country’s efforts to increase the share of renewable energy in its total final energy consumption, which reached 43.1% in 2021, according to U.S. Department of Commerce’s International Trade Administration (ITA). ■

Avid acquires Wolftech to boost news production capabilities

Avid Technology has announced its acquisition of Bergen-based Wolftech Broadcast Solutions, a specialist in cloud-based multiplatform planning and publishing for news production. The merger aims to enhance news, sports, and live production workflows by combining Avid's media solutions with Wolftech's expertise in story-centric workflow management.

Both companies have emphasized their commitment to customer choice, with plans to continue integrating with a range of media production tools and newsroom systems. Existing Wolftech customers can expect to benefit from Avid's global scale for customer support, professional services, and news production solutions.

The acquisition hopes to deliver a unified suite of tools with AI-powered features; break down silos between digital, broadcast, and long-form teams; increase resource efficiency; and optimize team collaboration. The combined technologies will allow news production organizations to centralize communication and leverage an integration engine with an open API and AI framework.

A member of Media Cluster Norway, Wolftech has been actively involved in Project Reynir, an initiative aimed at advancing media technology. As part of this project, Wolftech, along with other members, has been working to incorporate Content Authenticity Initiative (C2PA) technology — a tool for tracking the provenance and identity of content throughout the production process — into their solutions. With Avid's acquisition of Wolftech, industry observers are keen to see if Avid will continue and potentially expand upon Wolftech's commitment to C2PA implementation.

European cities gather in Aalborg to call for stronger support in green transition

The 10th European Conference on Sustainable Cities & Towns (ESCT), held in Aalborg, Denmark on Oct. 1-3, brought together over 1,000 politicians and civil servants to discuss the critical role of cities in driving sustainable development. The event, marking the 30th anniversary of the Aalborg Charter, ended with the introduction of the Aalborg Conditions, a declaration signed by mayors from 35 European cities.

The Aalborg Conditions highlight three crucial policy shifts: shared governance, integrated finance, and a socially inclusive transition. This document urges the European Union and member states to provide local authorities with the necessary framework and support to effectively lead the green transition. It also stresses the importance of adequate financing to implement local action plans, including direct access to EU funds.

Cities are calling for recognition as key players in multilevel governance systems, emphasizing the need for active participation in legislative processes. As Europe aims for climate neutrality, the conference underscored the pivotal role of urban areas, which house the majority of the continent's population. Delegates agreed that a shared vision and strong commitment to democratic processes are essential for implementing sustainable solutions at the local level.

Organized by Local Governments for Sustainability (ICLEI) and hosted by the City of Aalborg, the event was part of a week-long sustainability festival showcasing regional advancements in green initiatives. It highlighted how Local Green Deals are implementing the EU Green Deal across Europe and explored the potential of partnerships to drive sustainability efforts.

Sámi-language film "*My Fathers' Daughter*" makes history at Toronto Film Festival

The Toronto International Film Festival (TIFF) hosted the world premiere of *My Fathers' Daughter* on Sept. 8, making it the first-ever Sámi-language feature film to debut at the prestigious event. Directed by Egil Pedersen, this coming-of-age family dramedy stars newcomer Sarah Olaussen Eira and featured a cameo by Game of Thrones actor Nikolaj Coster-Waldau.

The film tells the story of Elvira, a confident teenager who believes she was conceived at a Danish fertility clinic. Her fantasies about her father being a famous movie star are shattered when her biological father unexpectedly appears.

Pedersen, making his feature debut, drew from personal experiences growing up Sámi in Norway. The Sámi are an indigenous people inhabiting Sápmi, a region stretching across the northern parts of Scandinavia and the Kola Peninsula in Russia. In an interview with The Guardian, Pedersen expressed hope that the film would resonate with audiences struggling with identity issues.

The production received crucial support from Neo, the Norwegian Film Institute's program for debut films, and utilized AI-driven audience insights to enhance its storytelling. Anne Lajla Utsi, managing director of the International Sámi Film Institute, hailed the film as a landmark moment for Sámi culture. Germany-based Pluto Film acquired world sales rights to the film ahead of its world premiere at the festival. Read our interview with Anne Lajla Utsi on p. 63.

Finnish Film Affair takes a walk on the weird side

The 13th edition of the Finnish Film Affair (FFA), held from Sept. 25-27 as part of the Helsinki International Film Festival, took an unexpected turn this year under the leadership of its new director, Alisha Hasan, who joined in April. The event, known for showcasing Nordic cinema, embraced a different approach with the introduction of the Finnish Weird (F-Weird) pitching session, opening its doors to creators with the most unconventional and daring projects from around the world.

The F-Weird session invited pitches for unique feature films, TV series, documentaries, reality TV, short form, and transmedia projects. Out of numerous submissions, twenty projects from nine countries were selected to compete for a prize package including gear rental, editing facilities, and €2,000 in cash.

In an interview with Variety, Hasan described how her background in gaming and animation influences her vision for FFA. She introduced a matchmaking session to connect film and gaming industry representatives, aiming to foster cross-industry collaboration. While maintaining FFA's reputation as a boutique event, Hasan aims to expand its international reach and position it as a frontrunner in exploring cutting-edge trends such as AI, transmedia, and innovative financing models.

Nordic Youth Fund launches to support climate and biodiversity projects

In a move to empower young environmental activists, the Nordic Council of Ministers and the Nordic Council have jointly launched the Nordic Youth Fund for Climate and Biodiversity. The fund, which became operational on Sept. 2, aims to provide financial backing for youth-led projects addressing climate change and biodiversity loss across the Nordic region.

Managed in collaboration with the Danish Youth Council (DUF), the fund was developed with input from young people to ensure its relevance and effectiveness. Having emerged from a proposal unanimously adopted at the 2021 Nordic Council Session in Copenhagen, the fund will offer grants ranging from DKK 25,000 to 250,000 for innovative projects. Young people aged 15-30 from all Nordic countries were eligible to apply to the first application deadline on Oct. 27.

The initiative has garnered strong parliamentary backing and aims to contribute to the goals of the Paris Agreement and the UN Biodiversity Agreement. With an initial allocation of DKK 800,000 from the 2022 budget, the fund seeks additional support from Nordic governments, funds, and the private sector to expand its impact and strengthen the voice of young climate activists on the global stage.

THE FLINT

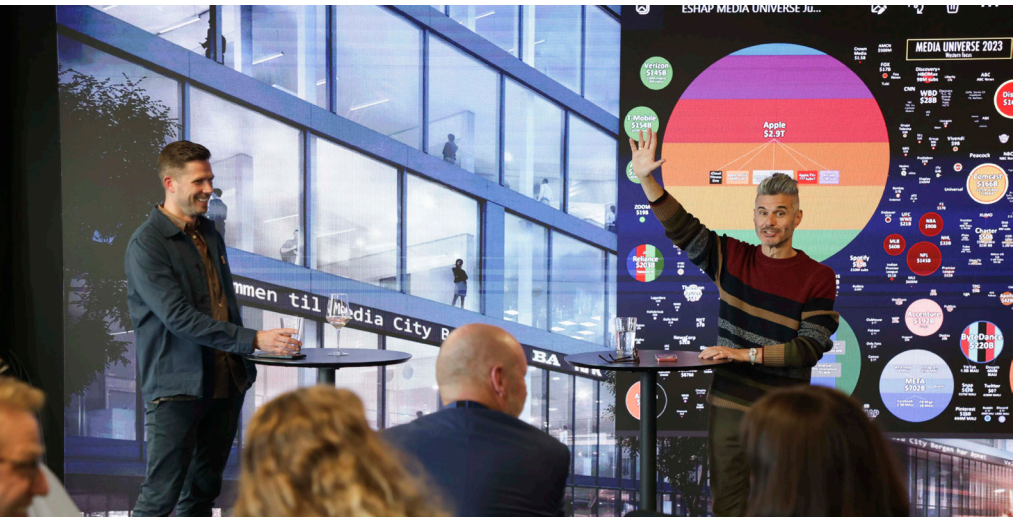
THE NORDICS

WORK & BUSINESS

Media City Bergen becomes Media Cluster Norway with “sustainable democracy” a priority

Media City Bergen has become Media Cluster Norway, but while its reach has expanded, its mission is more focused than ever

By Neal Romanek



Media City Bergen (MCB) has been a major center of industry innovation, recognized not just in its home country of Norway but across the European broadcast sector. Located in Norway’s second largest city, this cluster of newsrooms, media tech businesses, and academic institutions has worked together on innovations in tech, business, and content creation, which has had a ripple effect across the industry.

For some time, the activities of MCB have extended beyond the boundaries of its brick-and-mortar headquarters near the center of Bergen, which includes partners and businesses in other regions of the country. But it’s only this year that the group has embraced a rebrand as Media Cluster Norway.

The seeds of MCB were planted in the early 1990s when Norway’s TV 2 got its license to be the country’s first free-to-air TV channel. The Norwegian government stipulated that the broadcast must be based outside of Oslo.

“That really spurred organic innovation,” explains Media Cluster Norway CEO Helge Svela. “TV 2 had this kind of beginner’s mindset, and they had to really innovate and do

more with less, compared to the public service broadcaster NRK, which had a 40-year legacy of doing TV."

Journalist Helge Svela became CEO of Media Cluster Norway — then called Media City Bergen — in 2022

The TV 2 team began innovating in areas like graphics, spawning technology that eventually became broadcast graphics leader Vizrt. Other tech innovations and support businesses began to organically spring up around the broadcaster, and by 2010, there was enough of an ecosystem in Bergen to be formalized. With the support of Norwegian state broadcaster NRK and regional newspapers Bergens Tidende and Bergensavisen (BA), along with the University of Bergen, a formal cluster was formed. Government-owned agency Innovation Norway also provided grants for the members.

Growing innovation

The physical premises of MCB were built in 2017 as a shared space for the members. "But now we've kind of grown out of the building," says Svela. "Even if our founders are there, we now also have members from all over Norway — from Oslo, Stavanger, Tromsø — and we have taken a position as a leading Norwegian environment for newsrooms and technology."

With an expanding geographical range and an array of contributing partners, it would be easy for Media Cluster Norway to become the sum total of its members. Svela, whose career has been spent at the leading edge of newspaper journalism, says that the organization's role is actually well defined: It aims to be a leader in the major issues that take place at the intersection of journalism and tech.

"Innovation in the newsroom, smarter ways to work, and anything to do with the digital transformation would be within scope," says Svela. "But we don't deal with things like general newsroom systems architecture, and we wouldn't deal with hardcore press ethics. It's been fruitful to have a cluster that's not only the newsrooms and immediate

companies, but also the providers and customers. We can facilitate a lot of organic cooperation."

There is also a "secret sauce" to the cluster's activities — namely, the academic partners who can provide new outlooks and viewpoints on projects.

"I grew up in the newsroom, and I'm used to things happening very fast. I also worked with the product and tech side as well and I learned that those processes tend to take more time because they have to follow a certain roadmap," says Svela. "Then you have the academic partners, where things move even more slowly, but they have a different way of doing things. When these three worldviews, these kinds of cultures, interact, it's not always friction-free, but it's always really interesting."

Rising tide of collaboration

Bergen has been a major port city since the Middle Ages, so the expression "a rising tide lifts all boats" may be especially apt for MCB. While some of the partner organizations are competitors, the media tech collaborations have been mutually beneficial.

"Our informal motto is, 'We collaborate where we can, and we compete where we must.' There are a lot of examples of one media tech company getting a foot in the door in a new market, and then they help some of the other companies get their foot in the door as well who might be complementary."

One of the collaborations engaging Media Cluster Norway partners is the implementation of the Coalition for Content Provenance and Authenticity (C2PA), which is working to set standards for tracking the provenance of digital content. With bad actors deploying a firehose of disinformation in an effort to break the factual media space, news and tech organizations are developing protocols that can help track the factuality and ownership of content from glass to glass. The Norwegian component to this effort is "Project Reynir", which uses C2PA and other technologies to help produce trustworthy media and, in turn, bolster democracy (read The Flint's feature on Project Reynir on p. 59).

Other collaborative projects include a network focused on improving data-driven journalism. Started by a senior project manager who aimed to connect about 20 data journalists in Norway during the pandemic, this network has rapidly ballooned to 400 people, all of whom regularly share methods and best practices for impactful data journalism. This includes sensor journalism, which uses databases and live feeds from sources like flight and shipping data or meteorological data on extreme heat or rainfall. Organizations like open-source journalism resource Bellingcat are also joining as partners.

The success of the data journalism project was rolled out to other newsroom specialties, and there are now similar knowledge-sharing networks for editors and subeditors, for video journalists and photographers, for young journalists and for mobile phone-based journalists.

Sustainable democracy

Democracy and the fight to support and strengthen it seems to be an ongoing theme at Media Cluster Norway. The fact that Norway shares a 200km-long border with a country who invaded a neighbor specifically to destroy its democracy helps to keep democracy front of mind.

"One of our biggest sustainability projects has been what we call 'sustainable democracy', where we have focused on how important newsrooms are for our democratic processes," says Svela. "That's why we've had this strong focus on disinformation and fake news. What can be done to counteract it —in terms of making journalists better equipped to meet the challenges, to reach younger audiences, and to get a good reach for the important stories — is how our interest in C2PA came about. We saw that if our information ecosystem gets so polluted by gen AI and disinformation, then we are really in trouble — not only as media consumers, but our whole democracy.

"We really strongly believe that all the other sustainability goals cannot be reached unless we have a shared democratic debate around these things and enable users to find and trust real facts."

Bergen's biggest building is also one of its sustainable success stories

The Media City Bergen building has become more than a hub for the Norwegian media business. It's also a beacon for sustainable commercial real estate.

Media City Bergen, the headquarters of Media Cluster Norway, is a building operated by Norwegian real estate company Entra ASA, a company created to manage government office buildings when many of them became privatized in 2000. Sustainability is a priority across Entra ASA's portfolio, but Media City Bergen has become a sustainability showpiece.

One of the benefits of Entra ASA being a spin-off from the government was that environmental considerations were already baked in from the beginning.

"We developed competence and innovated when it came to energy consumption, refuse, and water, and we had goals on how to meet those criteria," says Sturla Hjelmervik, the company's property manager for Bergen. "Now, I'm starting to hear from potential tenants about the importance of ESG reporting in the European Union, and so this has become a big advantage for us."

Big sustainability

Media City Bergen is the biggest building in Bergen and the second largest in Norway, but it's also a building of considerable age — especially for one housing a modern, high-tech media hub. Built in the 1970s, it needed refurbishment when the tender went out in 2012 for the fledgling Media City Bergen project.

"Instead of tearing down the existing structure, we decided to keep the main concrete and steel elements, which saved a lot of CO2," explains Hjelmervik. "I don't think anybody cared about that aspect at the time, but it was important for us. We had a focus on environment from the start."

Norway is largely powered by zero-carbon hydro and wind power, but the building goes a step further than green energy. It has a water-cooling system in which water from the bay, a couple hundred meters away, is pumped directly into the building. The water-cooling system has been used in other buildings in Bergen, and the engineering is fairly simple: Two pumps ensure the continuous flow of water from a depth of 100 meters, which is then used to cool freshwater that circulates through the building. Of course, this makes for easy temperature control in the summertime, but the setup is also used to cool Media City Bergen's substantial data center. Using a couple pumps to circulate water also produces substantial savings compared to a fully electrified air conditioning system, which would also be subject to changes in energy prices.

There are also benefits beyond the confines of the building. First, the seawater loop is shared with other nearby buildings. And the lack of a major air conditioning system on the roof eliminates noise pollution that most city dwellers in the world just take for granted.

> ***Instead of tearing down the existing structure, we decided to keep the main concrete and steel elements.***
>
> ***Sturla Hjelmervik, Media City Bergen***

A positive direction

In 2022, Media City Bergen was nominated for a BREEAM award. BREEAM is a science-based suite of validation and certification systems for making built environments more sustainable. The certification, established by the U.K.'s Building Research Establishment (BRE), supports ESG solutions in net-zero carbon, whole life performance, health and social impact, and biodiversity, among other metrics.

And, of course, there's honey. The building has a rooftop garden, which also houses beehives. The harvested honey is distributed to the building tenants.

"Maybe it's just a novelty," says Hjelmervik, "but I think it's important to focus on the fact that everybody can and should do their part to make contributions in a positive direction."

Transforming the creative sector requires more than creativity

Kulturrom provides individual cultural venues and rehearsal spaces with sustainability support, but system change needs a systemic approach

By Elsie Crampton

"Once you take a dive into the culture industry, you can see that there's a lot of will toward sustainability. But there's not enough competence, there's not enough time, and it isn't systematic."

Karen Sofie Sørensen is general manager of Kulturrom, a Norwegian grant scheme that helps support cultural spaces, including rehearsal rooms and technical facilities. Since its launch in 2009, Kulturrom has invested over 65 million kroner in outfitting venues across Norway.
Sustainability has become part of Kulturrom's mandate, but working at the grassroots of the cultural space reveals some of the large-scale hurdles that government and business need to clear in the sustainability transition.

"You can say 'Culture *is* sustainability. We make communities better just by existing,'" says Sørensen. "That's a narrative that has gone on for a while, but the sector itself has not done enough to reduce its own emissions."

This kind of exceptionalism pervades the creative industries globally. From taking private planes to an event that lasts a few hours on a Sunday evening, to using tonnes of materials to build a set that will be used for one shot, to demanding that crews work extraordinarily long hours because there is never quite enough time or money — there's always a special reason for media industry excesses. Challenging these

practices can be tantamount to challenging the industry itself. To actively call for an end to the use of private jets feels like something that could easily lose you your job — or keep you from getting hired for the next one.

But this exceptionalism is enabled by the culture at large. And there are good reasons for that. No one likes the idea of restricting creative freedom, and calls for more sustainable approaches can get easily confused with calls to stifle creativity. Sørensen notes that the Norwegian government has almost been phobic in avoiding making any demands on the culture sector that might be construed as stifling.

"They have been afraid of saying, 'You have to measure, you have to have a plan for reducing your impact.' Only recently has there been a meeting with the government and the cultural sector to discuss it."

Boosting culture boosts society

To avoid transforming the cultural sector itself also weakens the ability for the society as a whole to make the transition. For good and bad, throughout history, the creative industries' own internal attitudes also get projected out into society. If you want to transform practice in the community, transforming the cultural sector itself needs to be part of the plan.

"There are two main things we have to start talking about," says Sørensen. "Only maybe 20% of this is about cutting our own emissions, looking into our own practices and making some powerful transitions. The other possibilities lie in the creative sector's part in the green transition within our society. How can culture be a hub for new ideas, and how do we use our arenas as a way of changing the public opinion? For example, we live in Norway, and we are funded by oil, but we don't talk about it. There needs to be a place to talk about how we change. How do we stop living on fossil fuel?"

Incentives and education

The Nordic Green Roadmap for Cultural Institutions was published in 2023 as an outcome of the Sustainable Cultural Experiences in the Nordic Region project. This project was led by The Nordic House in the Faroe Islands as part of the Nordic Council of Ministers' Sustainable Living program. The Roadmap is a good outline for getting a large number of stakeholders up to speed on major sustainability issues. It's a good educational piece, opening with the challenging truth that "Nordic citizens have the highest personal carbon footprint in Europe." But moving from education to action is all too often the missing link in sustainability.

> ***They have been afraid of saying 'You have to measure, you have to have a plan for reducing your impact.***
>
> ***Karen Sofie Sørensen, Kulturrom***

The money distributed by Kulturrom primarily goes to small-scale community venues for music, dance, theater, etc. One of the main functions of the grants is to help venues buy tech for facilities like sound and lighting. But recently, the organization began to think about how it could help these venues make better choices. Rather than just blank-checking the purchase of new gear, Kulturrom has a new initiative to help venues repair the equipment they already have or to source used equipment. When facilities receive money, they are told that gear must last for ten years and that they need to establish routines for maintenance and repair while also having access to education and knowledge-building around the practices.

Kulturrom has also launched a Greener Investments fund to supplement its regular grants for technical equipment and premises. The Greener Investments funds are directed toward promoting circularity and the reuse of premises and equipment, strengthening competence, and supporting more localized initiatives.

“One of the things we are really good at is using buildings that are already there,” says Sørensen. “We’ve looked into these transformations and how the creative industries — when they go into old buildings where there used to be industrial production — can create cultural hotspots. We have started a new conversation where we emphasize that the cultural sector is one of the best at actually reusing existing buildings.”

But real change has to come from a multi-pronged approach at scale. Individual initiatives are unlikely to create the tipping points needed for the evolution of the entire sector.

“It has to come from two ways,” says Sørensen, “You need help or funding to do something in your organization. And then there has to be some legislation so we don’t fall behind other sectors. With all the ESG changes happening in Europe, it will also come down on the small culture players too at some point.”

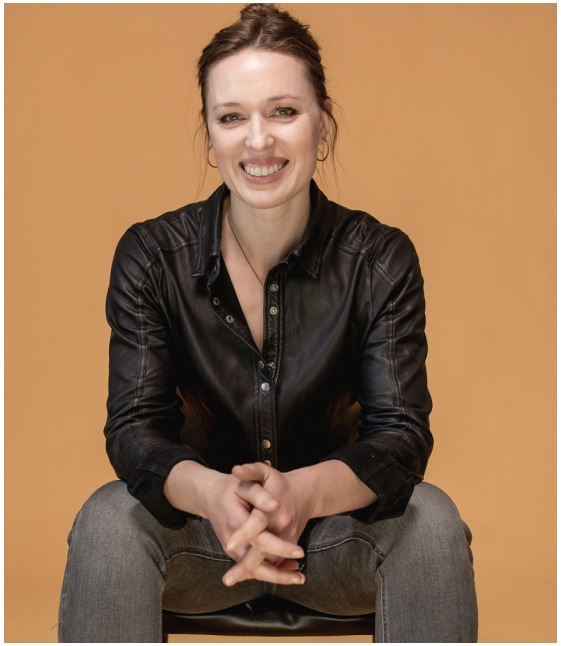
A Danish community channel becomes a test bed for the next wave in TV

NXTV was launched to create relevant content for a local audience, with a mix of agile production and inclusivity

By Ashton Corsetti

In the picturesque city of Odense, Denmark, a media revolution is quietly unfolding. Pernille Callesen, CEO of NXTV, is on a mission to evolve local TV by aligning content with current viewer habits and leading with more agile production methods. With a blend of innovative production techniques, youth engagement, and a keen eye on gender equity, Callesen is redefining what local TV can be in the digital age.

Launched in January 2020, NXTV stands out among Denmark's 38 local TV stations. At the heart of NXTV's approach is a lightweight production workflow that Callesen developed out of necessity, which involves thorough planning, rapid shooting, and efficient editing. This has resulted in remarkable turnaround: While regional stations often take about ten days to produce content, NXTV can create similar material in just two days.



Pernille Callesen launched NXTV as a way to make local TV relevant again

The station's focus on efficiency extends to its environmental consciousness. They carefully plan production days to minimize travel and fuel use, often scheduling multiple shoots in the same area on a single day.

"When I first created the station, it was just me, so I had to figure out how to produce high-quality content with very limited time and resources," she recalls. "We have a very strict production method because we have so little time, few people, and a demand for four half-hour programs every week."

While NXTV is primarily an online channel, it hasn't completely abandoned traditional broadcasting. Their hybrid approach allows the station to reach a broader audience while staying true to its core mission of modernizing local television. It's a delicate balance that Callesen believes is crucial for the station's success and relevance in today's media landscape.

Bridging gaps in education, industry, and gender equity

NXTV's content strategy is tailored to engage a younger demographic, primarily viewers aged 18 to 35. The station focuses on creating portraits of entrepreneurs and individuals doing unique things in their communities. These half-hour segments not only showcase inspiring stories but also provide insights into various career paths and educational choices, thereby serving as a valuable resource for young adults navigating their futures.

Upon recognizing a significant gap in Denmark's media education landscape, Callesen has integrated an academy called Medieakademiet into NXTV's operations. The academy aims to provide real-world experience to students and recent graduates. It offers mentorships and workshops, covering everything from idea development to production, editing, branding, and digital publishing. Callesen also has

collaboration agreements with several universities to create practical environments for their students, addressing the lack of hands-on experience in formal media education.

NXTV employees, interns, and volunteers are the key to its success

Another key focus is tackling the gender disparity in Denmark's media production sector. Her research revealed that women often lose opportunities in these fields during their studies, frequently being relegated to planning and organizational roles in group projects. NXTV and its academy are actively working to change this dynamic by giving them the chance to explore camera operation, editing, and other hands-on production tasks. She aims for a balanced approach in the academy's programs, targeting a 50/50 or even a 60/40 female/male split in gender representation.

"The academy was actually part of the original business plan when I created the TV station. We envisioned it as a way to create a network among students, businesses, and the industry," says Callesen. "With the right sponsors and investors, this could become a place where we develop new technologies that will be part of every business worldwide."

NXTV prioritizes training of young women for production roles

Forging ahead against the odds

Callesen's vision extends beyond just revolutionizing local TV. She sees NXTV and a new media hub, tentatively called "Daybreak Alliance", as potential catalysts for broader change in Denmark's media landscape. Her ambitious plans for Daybreak Alliance include an innovation component, connecting media studies with various industries involving software, AI, and other technologies. The goal is to create a hub for knowledge sharing, future planning, and ensuring educational programs remain current. Daybreak Alliance is actively seeking funding and sponsors to help scale up its operations and impact.

Despite the ongoing challenge of limited resources, Callesen remains optimistic. After all, the journey of NXTV hasn't been without its challenges. She recalls the station's early days with a mix of pride and amusement, and it was support from the local community that proved crucial.

> ***I was running around producing programs for a TV station that might or might not be approved.***
>
> ***Pernille Callesen, NXTV***

"We were set to air from January 1, 2020, but I had nothing when we started," she explains. "For one month, I was running around producing programs for a TV station that might or might not be approved. The local community was very supportive because they saw the value in this TV station. We had to borrow gear, offices, computers — everything."

Through it all, Callesen has routinely proven her ability to adapt and innovate in the face of adversity — a key component to the station's survival and growth. It's this spirit that she hopes to instill in the next generation of media professionals.

Elin Bergman: “The reason why the Nordics are worse than the average is because we’re so rich, and we’re over-consuming”

Elin Bergman has been dubbed the “Circular Economy Queen of Sweden”. She is co-founder of the Circular Hotspot and COO of the Swedish circular economy network Cradlenet. We sit down to discuss her journey from entertainment industry marketer to becoming a leading voice in sustainable business practices.

The Flint: *Earlier in your career in the media industry, you tried to make a difference in sustainability but found it hard. When did you decide you had to do something different?*

Bergman: It was during my time at Fox, between 2005 and 2007. I was the Promotion Manager, creating marketing campaigns and promotional materials. I remember trying to implement sustainability initiatives, and as a thank you for my ambition, Fox sent me a plastic cup. I was so frustrated because it felt completely disconnected from reality — sending me an oil-based plastic cup for making a sustainability effort!

That’s when I realized I needed to change direction. I thought, “Oh my God, what if I put all this time and energy into saving the planet instead?” It was actually good, because it pushed me to make a change.

The Flint: *That's quite a wake-up call. So how did you transition from the entertainment industry to circular economy?*

Bergman: Well, I got involved with Cradlenet because I'm a sailor. I've sailed half around the world with my family. Cradlenet invited Dame Ellen MacArthur to speak in Sweden. She single-handedly sailed around the world when she was about 18 and broke a world record. She's kind of royalty in the U.K.

Ellen MacArthur is a big reason why "circular economy" is so important now. Instead of presenting circular economy as just looping materials and having no waste, MacArthur brilliantly started talking about it in a way that made it much more appealing. Everybody can relate to the word "economy" — it's actually about economizing with the precious and scarce resources we have on the planet.

I went to MacArthur's lecture in Stockholm, at the Royal Institute of Technology, initially just to hear her sailing story. But she talked about circular economy, using her boat as an analogy for the planet. If she had used all her resources on the first day of sailing around the world, she wouldn't have made it. That's what humanity is doing with the planet now: We have a limited amount of food, energy, and materials for the green energy transition, like copper and iron. We're depleting these precious resources extremely fast.

After that lecture, I contacted the people running Cradlenet and asked to get involved in any way. By 2014, I was on the board, and the year after, I became the chairman. I've been engaged for 10 years now.

Cradlenet's board and office in 2024.

Photo: Angelica Sundström

The Flint: *That's amazing. Can you tell us more about Cradlenet? What exactly does it do?*

Bergman: Cradlenet is one of the oldest Circular Economy business networks in the world, though private individuals can also become members. We started in 2009. The name comes from a book, *Cradle to Cradle: Remaking the Way We Make Things*, which is basically about circular economy, even before the term existed.

Everything we do tries to accelerate the transition to circular economy in three ways:

We want members to know each other and do business together.

We spread knowledge about circular economy and its benefits, sometimes producing our own knowledge to fill gaps. We do projects, write reports, and create tools and methodologies to make it easier for our members and other businesses to become circular.

We influence policy by writing suggestions, publishing debate articles, and organizing events. Every fall, we survey Sweden's political parties about their circular economy ambitions. When we started this six years ago, they knew very little, but now they understand the concept and have made policy suggestions. We rank their answers, put them on stage to defend what they said, and it usually gets a lot of media attention.

Cradlenet is mostly Swedish, but we do engage with other countries, and it's becoming more and more international. I'm currently in Spain, and we're starting something similar to Cradlenet here, because they're about 10 years behind the Nordics in their circular transition. There's a big need.

Our assignment is to accelerate the transition to circular economy, and that also helps Swedish companies.

The Flint: *You've mentioned that Sweden is only 3.4% circular, and the world is only 7.2% circular. That seems low, but it's actually more than I would have thought.*

Bergman: Actually, every year that the Circle Economy produces their survey, the Circularity Gap Report, the number actually goes down because they have more accurate data. So, it's getting worse. They started at 9.8% circular for the world, now it's down to 7.2%. So the real number is probably even less.

The reason why the Nordics are worse than the average is because we're so rich and we're over-consuming. We have really good waste systems and a lot of recycling, but then we incinerate our waste to make what we call sustainable energy. It's not. This is a big system I'm trying to change.

Sweden is good at recycling but still burns a large percentage of its rubbish for energy.

The Flint: *So, how do you approach businesses to get them on board with circular economy principles?*

Bergman: Businesses have to change their whole models, moving away from selling a lot of products that break just after the warranty expires. We have planned obsolescence programmed into products. But if businesses go from selling products to instead selling a service, they can make more money, customers can be happier, and things can be shared between customers.

This is what I love about circular economy. Unlike environmental organizations that focus on stopping emissions and pollution, circular economy resonates with businesses because it's about being more efficient, making more money, and making customers happier. As a lovely side effect, it also doesn't destroy the planet. But we don't really talk about the environmental stuff — it's all just good business sense.

Even oil companies are looking into becoming circular. It's greenwashing, but they can also be much more resource efficient. This is why oil pumps are driven by solar panels, not by the oil they're pumping up.

The Flint: *That's pretty funny, but also kind of horrible. Are there some immediate things businesses can do to start this transition?*

Bergman: We have a nice intro guide called the Circular Action Guide. It's just a few pages with the big things you need to do to start. If you want a crash course into what circular economy is, that's a good resource.

The easiest starting point is usually to look at whether you have any waste streams. If you do, you're doing something wrong. Waste is very concrete — you can touch it, and it's usually connected to a cost. You have to pay someone to take care of your garbage or waste.

Digitization can be a sustainability aid, but problems of planned obsolescence and e-waste need to be solved.

A big chunk of the circular economy transition needs to be digital, but it needs to be sustainably digital. So many things with microchips and computer parts are programmed to break.

For instance, Apple was sued by the European Union because they slowed down older phones when new ones came out, almost forcing you to buy a new one. Phones could actually last for 10 years, but the average person owns them for only 18 months before buying a new one. It's madness.

I'm very much in love with the EU right now. There's so much fantastic legislation coming out, especially in circular economy, and you can see the effects it has. For instance, we have a mandatory reporting directive now called CSRD. It makes all companies report not only on climate change, water, marine resources, biodiversity, and pollution, but also circular economy. This is amazing because it means companies need to figure out what they're doing in their value chains. They never had to do that before.

Bergman moderating at a Circular Economy and Innovation event, hosted by the Stockholm Institute of Transition Economics.

Now, companies and private individuals can compare different companies and see which ones are not only reporting the best but actually doing the best. I think reporting comes first before doing. I recently posted on LinkedIn that companies are currently putting much more money into reporting than actually doing something about climate change. But we have so little time to fix climate change, we have to do everything that needs to be done.

The Flint: *Finally, you seem very optimistic about the future despite the challenges. What keeps you motivated?*

Bergman: One of my favorite films is Home, which is available for free on YouTube. I always use a quote from the end of that film: "It's too late to be a pessimist." I just love that. I'm a super optimist. I don't know if we can make it, but I'm so happy to live in the future where I get to be part of all these cool inventions and stuff. So yeah, it's too late to be a pessimist anyway. ■

Download the Circular Action Guide **here**.

Training Norway's Broadcast 2.0 generation

Vizrt is bringing local talent into its global offices to build the next generation of broadcast technologists

As broadcast trends towards software-based systems, it is also becoming more flexible, more fluid, and more complex. This challenge is compounded by newcomers to the industry having to jump onto a moving train, where workflows and best practices are in a state of flux.

How do you bring in the next generation of media workers and train them for a job that is still in the process of being defined?

To tackle this problem, some tech companies are engaging with educational institutions to get young people into the broadcast space — not just to fill gaps in the workforce, but to plant the seeds for what will become the next new paradigm in broadcast: Broadcast 2.0.

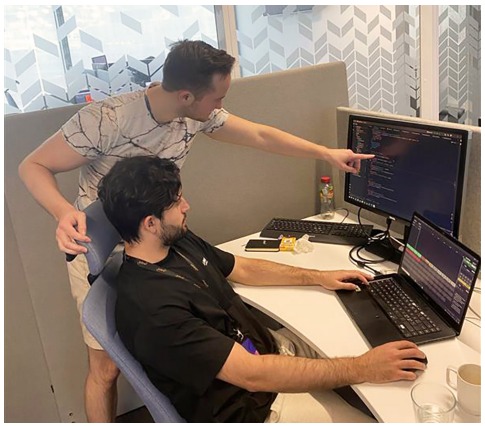
"Broadcast technology is an invisible industry, in a way," explains Catherine Webb, Vizrt's Head of Corporate & CSR Communications. "We need to educate, we need to engage, and we need to make the career path very visible to students so they know it's a viable option."

Vizrt's outreach at regional universities aims to catch the next wave of tech talent.

Partnering with education

Norwegian TV graphics tech mainstay Vizrt has always made training a priority. Its Viz University program, started over a decade ago, offers customers, partners, and freelancers a

library of courses for upskilling and certification around its suite of tools. But on top of this, the company operates an internship program as a pipeline for new talent.



Vizrt's global internship program is tailored for each of its global offices, which span 40 countries, with each region having its own opportunities and challenges for engaging young people. In Norway, internships with businesses are often a part of higher education, allowing the company to engage with local universities near its headquarters in Bergen.

The internships start with a semester of working across Vizrt's range of teams, from technology to marketing, helping interns find the best fit for their interests and skills. Candidates are selected from relevant courses at partner universities, which could include software development, UX design, marketing, and communications. The interns then have the option to complete a project with Vizrt as their final bachelor thesis.

There are fewer broadcast-specific courses available at higher learning institutions than in the past. This reflects not only declining interest in these courses but also the changing nature of broadcast, as it becomes more a part of the world of software and IT. Broadcast is now open to a variety of skill sets that have applications across multiple industries.

Margrethe Berg was studying software development at Western Norway University of Applied Sciences when she completed her bachelor thesis project with Vizrt. She is now working full-time as a software engineer for the company. The learning curve was steep, but the position has opened up a lot of opportunities.

"When I came in, I knew nothing about the broadcast industry," says Berg. "After working at Vizrt for two years, I know a whole lot more, but that first year was pretty intense. A challenge we often have with entry-level developers is that they need a year to gain a broader understanding of our industry. By having interns or students doing their bachelor projects with us, it starts that process a lot earlier — benefitting both the student and us down the line."

As broadcast technology loses its hyper-specialization, it means that those working in the industry can develop skills that are easily transferable. Someone entering the industry

today can blaze a path in the rapidly changing world of broadcast but can also much more easily switch to a new industry than previous broadcast generations could.

“I know that some broadcasters do their own in-house development,” says Berg, “but ultimately the skillset that I’ve developed here is broad. I don’t feel like a career in broadcast technology is limiting to my career at all. I can take what I’ve learned here and go anywhere.”

Generalists vs specialists

The breadth of the Vizrt product portfolio reflects this horizontal expansion out of the traditionally narrow broadcast vertical. From being a top supplier to Tier 1 broadcasters, Vizrt now offers tools for broadcasters at every level — from YouTubers to companies delivering the world’s top live events. This also means that the talent Vizrt is seeking needs to be able to turn their hand to a wide spectrum of solutions.

> ***I can take what I’ve learned here and go anywhere.***
>
> ***Margrethe Berg, Vizrt***

“We do want some product specialists,” explains Catherine Webb, “but we also want people who can be moved on to different products that serve different markets, different customers, and different verticals. Otherwise, we’re not flexible. If we’re not flexible, then we are not fit for the future.”

Is there a danger that broadcast could become just another digital industry, no different from any software-based business? Not likely. Broadcast still has its own unique requirements that will be around for a while. The process of working with and delivering large video files alone requires its own specialized skill set. But skills will need to be applicable to a variety of situations and to an industry that is not going to sit still.

“We need to trust that the new generation of technologists, who are generalists, can learn on the job the specificities that are required,” says Webb. “People coming in now know processes a lot better and how to simplify them. They can provide better insights and make those processes fit for the future.” ■

THE FLINT

THE NORDICS

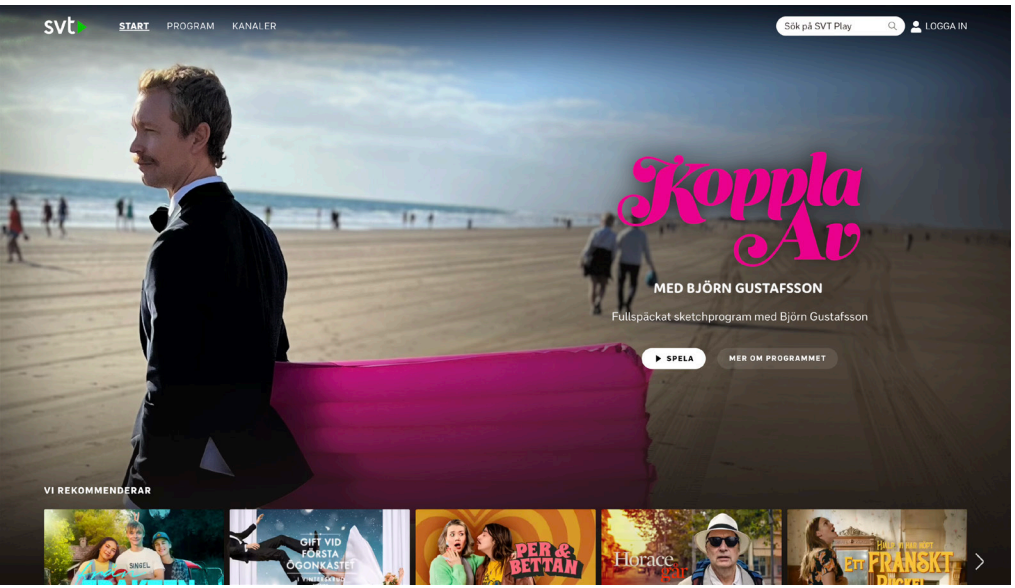
TOOLS & TECH

Tech and environment go hand in hand at Sweden's SVT

An ongoing program of digitization is preparing Sweden's national broadcaster for a more sustainable future

By Neal Romanek

Swedish national broadcaster Sveriges Television (SVT) has been thinking about sustainability in broadcast for a while. With some of the most forward-looking environmental initiatives of the region's big broadcasters, the company has especially focused on smarter ways of avoiding the negative impacts of transporting vehicles, gear, and personnel in and out of locations.



"We talk about sustainability a lot," says SVT group manager Madelen Ottosson. "We talk to our Nordic neighbors about it too, and the sense is always, 'If only we had the money, we could invest in greener ways of doing things.' But the economic truth is, sometimes we don't have the money, and we have to think of other ways."

SVT policies mandate consideration of the environment, which also means that if money savings and environmental needs are at odds, solutions still need to be found.

"I think the fact that we have separated the goals of saving money and the environment sets SVT apart," adds Ottosson.

The broadcaster's CTO, Adde Granberg, has been especially far-sighted in trying to find better solutions, with the region's other broadcasters looking to SVT for best practices that can be applied to their own specific geographies and business models. Some regions are seeking better approaches but are

still very attached to OB vans. Iceland, for example, is blessed with zero carbon power but has a small, scattered population living near active volcanoes, which may require its own unique applications.

A steady reduction in hardware is a key part of SVT's sustainability transition. Dubbed "Project Neo (Next Generation Online Production)," this initiative aims to transform SVT into a digital-first company using standard IT hardware for production.

SVT group manager Madelen Ottosson is training teams for a new way of working.

"We are investing in servers to put software on," says Ottosson. "The computer hall is growing, and the hardware stack is getting smaller. All parts of SVT are moving in that direction. But while the technology is there, ultimately, it's the people that need to be willing to adapt to new ways of working."

Sustainability is ultimately about the welfare of people, and it's the management of human transitions that often require the most care.

"For me, this is a marathon. I see the strategic side, and I know why we're moving in this direction. Then suddenly, I'm working on a show and see a crew member encountering this production environment for the first time, and my marathon is suddenly one kilometer for this person. It requires a lot of communication to ensure that everyone understands and can see the full picture. And, although it's sometimes frustrating, we are getting there, one step at a time. Change is always hard to accept, so we need to be humble about it."

Streaming that makes everyone happy

SVT's sustainable transformation is also embracing content distribution. In an effort to make content delivery more energy efficient, the broadcaster has become involved with initiatives like DIMPACT and Greening of Streaming.

"Streaming is so complex that it's really hard to know what initiatives are actually having an effect," says Olof Lindman, video R&D engineer at SVT. "Some initiatives sound good on paper but will have no effect, or they may cost a lot of money or take a lot of time. For us, this has been an investigative process that's been going on for several years. Alongside that is simply measuring and evaluating the effects of the initiatives we are involved in."

Lindman has found that there are often solutions where lowered costs and resource management coincide. For example, finding a better codec choice or ways to use less energy for the same user experience also ends up being a money saver.

"We are able to combine people who are not interested in the environment at all with people who think it's the most important thing. The former will be interested in the lower distribution costs, and the latter will be interested in reducing the amount of energy."

The teams also participate in collaborations and hackathons where potential innovations are brainstormed. One blue sky idea, not implemented, included being able to track the spot price of electricity in Sweden and, through that, being able to infer when the grid is drawing the most renewable energy. Potentially, users could then be notified when it's more environmentally friendly to watch content.

Unlike big cloud providers that make it challenging to get complete and accurate emissions data, SVT runs its own in-house cloud, enabling the broadcaster to guarantee the carbon footprint of its data centers. Running their own cloud allows greater control of cost, electricity, and efficiency of use. The team has also developed a tool internally called "Waste Buddy," which allows teams to track when they are using unnecessary resources and wasting energy. This is usually presented as a way to save money on the electricity bill, but of course, it's also about lower environmental impact.

Keeping the big picture in mind

But Lindman notes that production and distribution are ultimately only a small part of a much, much larger picture of energy consumption.

"We can optimize on-prem to save energy in the facility, but that is dwarfed by the energy of transmission — from the CDNs to the ISPs out to people's routers. And then the energy of transmission is negligible in comparison to the amount of energy used by all those customer-viewing devices. We've joked that one of the best things we could do with energy consumption and the environment is lobby for better energy enforcement of TVs."

Communication all throughout the content chain seems to be the key to progress, and the earlier that conversation can start, the better.

"Sometimes, a production will talk about doing something in 4K, and then down the line, we find that 4K is too big for the rest of the pipeline or for postproduction, so it's compressed for the rest of the process," says Lindman. "We produce for our big broadcasters but not for the public, who are just watching these things on an iPhone. It's better if we start communicating about how we actually need to produce from the very start."

To help customers be sustainable, Appear keeps it green in its own business

Appear's high-quality, high-efficiency video solutions are helping companies play the long game in sustainability

Oslo-based live production technology company Appear has committed to sustainability in its operations and manufacturing. But for the company, helping its customers be more sustainable is the real success. Providing high-end solutions for media processing and content delivery, Appear has a local manufacturing supply chain, with R&D and manufacturing powered by abundant Norwegian hydroelectric energy.

The company is compliant with major environmental standards set by industry organizations, including ISO certifications, Waste from Electrical and Electronic Equipment (WEEE) directives, and the REACH Regulation for protection against harmful chemical substances. But company culture and the human touch are just as much a factor in the company's progress. Simply being in Norway means having a more developed approach to human resources. The company's Oslo R&D team comprises around 25 different nationalities, and that diverse set of expertise is an essential part in achieving the elegant "Swiss watch" level of engineering that makes Appear a world-leading brand.

> ***You can't wait for regulations.***
>
> ***Thomas Jørgensen, Appear***

That corporate culture is also supported from the top via the leadership of CEO Thomas Jørgensen. Appear customer Tata Communications again held its international bike ride from London to Amsterdam for the IBC2024 show, with enthusiastic cyclist Jørgensen encouraging Appear team members to participate for a couple years now. The ride is a fun networking event, and it also really gets people talking about sustainability and the importance of focusing on the opportunities in the journey, not just the outcome.

Few broadcasters dislike efficiency, but efficiency gains can mean different things to different stakeholders. In Europe, where legislation is helping to accelerate the sustainability transition, Appear products have an environmental edge due to their efficiency, high quality and long lifespan. In North America, these same qualities are valued for their money-saving benefits, with environmental benefits being an additional plus. The company's flagship X Platform, designed to processes media for various use cases, was recently tested by a major European Tier 1 telco. The results showed that it used 40 times less rack space in their facility versus other comparable equipment, and during the same period of use, it produced 38 times lower CO2 emissions.

Appear's X20, for example, is being used for multiple, high-end live events, including just about any major global sports broadcast imaginable. Some events, especially those based on touring around multiple locations, rely on flight kits that need to travel and be set up all around the world. Every extra kilogram of weight costs money and labor — and carbon emissions — to move around. Outside broadcast is increasingly jettisoning the large OB truck in favor of more flexible, lightweight setups for which Appear hardware is eminently suited.

At IBC2024, Jørgensen also participated in a special tech panel run by the Media Tech Sustainability Series, which brought together CEOs from top media tech providers. On the panel, he recognized that simply being a Norwegian company was already a big boost:

"Operating in Norway gives lots of benefits in both diversity and sustainability," he said, but he thought it was a mistake for companies to rely on circumstances to do sustainability work for them. We need policies to help us make change, but you can't wait for regulations. You need to start driving change using quiet logic. The return on investment isn't always immediate, but you need to play the long game."

The Appear team once again participated in the London-Amsterdam bike ride to the IBC show.

Iceland: Sustainability Country

HBO's True Detective: Night Country *was a collaboration between a production and a country, with both sides taking away sustainability lessons*

By Neal Romanek

Some people will go a long way to make sure their production is sustainable — even fly to another country. A very cold country.

Producer Mari Jo Winkler-Ioffreda has been a sustainability gadfly throughout her professional career. In 2003, moved by the environmental damage she was seeing wrought on the planet, as well as the extreme waste that can happen on a film set, she decided she needed to become part of the solution.

"You're a producer," she told an audience in an interview with the Green Spark Group's Zena Harris at this year's NAB Show, relating her environmental awakening. "You're in a leadership position. You can actually effect change and do something about this."

She got up in the middle of the night, looked at her film budget, and decided what each department could do to be more sustainable.

"[For] each production after that, I've tried to see how I could raise the bar in finding ways to reduce our industry's carbon footprint."

As producer of the latest installment in the *True Detective*

series, *True Detective: Night Country*, Winkler-Ioffreda was determined to help her teams not just find greener options but also explore new territory in sustainable production. The HBO series, which premiered earlier this year, revolves around the cold case of an indigenous woman, murdered in a small Alaskan town after having protested against the construction of a local mine. The theme is also part of Winkler-Ioffreda's commitment to working on projects with environmental storylines.

Location, location

HBO had narrowed down several locations for the production. In addition to being able to pass for the Alaskan landscape, the location also needed reliable snow cover with easy accessibility for cast, crew, and production infrastructure. On the location shortlist were Alaska (of course), Canada, and Iceland.

A survey of the Alaskan location quickly determined that it was too remote — and too cold — to be practical for a large, sustained production. And the Canadian locations that could double for Alaska were just as environmentally hostile to cast and crew. Additionally, both locations would require air travel to access.

"What Iceland gave us," Winkler-Ioffreda explained to the NAB audience, "was landscapes similar to what we were seeing in Alaska, with snow and ice, but a lot of our locations were within a thirty-minute drive from a city center. And they had just increased their tax credit to 35%, which sweetened the deal."

Though the Icelandic film industry is relatively young, Winkler-Ioffreda described it as having "the hardest-working local crew that I've ever seen, and they know how to work in those elements." Being close to an Icelandic city didn't mean escaping the cold — shooting in January and February meant ongoing darkness and temperatures that were still subzero.

Iceland advantage

Iceland provided a number of items on the production's sustainability wish list: a skilled local crew, which reduced the need for flying in people from outside, as well as the necessary equipment on-site. Some people and gear were

flown in but to a vastly lesser degree than would have been required by the remote North American locations.

The biggest green bonus of shooting in Iceland was the country's carbon-free power grid. According to government numbers, 73% of Iceland's electricity comes from hydropower and 27% from geothermal power. About 85% of all houses in Iceland are heated with geothermal energy. In the world of carbon accounting, this means that, if the stay is long enough, someone from the U.S. — where the grid is much dirtier — will offset their flight to the country just by sitting around.

Given its green power grid, why then does Iceland have one of the highest emissions per capita in Europe? One reason is simple math. The country has a very small population — around 400,000. In contrast, England, only slightly bigger, has a population of 55 million! Iceland's carbon emissions are spread out over fewer people and therefore the per capita number is higher.

But another reason is that, while its grid is green, Iceland's transport runs on fossil fuels. Shipping, which is essential to the country's economy, and internal road travel are both oil driven. And access to the country is gained almost solely through air travel.

Hybrid cars and EVs were the vehicles of choice on the production. But low-emissions vehicles aren't always the most appropriate for the Icelandic climate. The show's director of photography, Florian Hoffmeister, ended up opting for a Toyota Land Cruiser.

Shooting for sustainability

"On *True Detective*, one of the very first calls we did was about sustainability," says the show's director of photography, Florian Hoffmeister. "But because of the winter weather we went through, you sometimes need a four-wheel drive. I had to switch because, in the area of Reykjavik where I lived, the snow became so high that you needed a proper jeep to actually get out of there."

DP Florian Hoffmeister and DIT Lorenzo Zama shooting under Iceland's Northern Lights.
Image courtesy of Florian Hoffmeister BSC

The production wanted to avoid diesel generators as much as possible, but there were no battery generators available in Iceland production. In response, one of the local facilities purchased a battery generator for the show's use, which now continues to be in use for other productions.

When the team shot on stages, they could rest easy in the knowledge that everything was powered by zero-carbon energy. On outside locations, subzero temperatures made it a challenge to run the production on battery power. So, says Hoffmeister, traditional internal combustion generators were used.

"One of the big changes in lighting has been the use of LEDs. There's a savings in power consumption, but also, when you work with LEDs, most of the color gets generated by the light itself. Just the savings you make in not having to gel anymore must be gigantic."

Another branch of sustainability important to Hoffmeister is the environment around the cast and crew.

"On set, we were careful about separating out our recycling, but having your own water bottles to refill is actually really significant. Using all that plastic is crazy.

"Food is also an important element. On a regular set, there's so much food being offered in terms of the different dishes, and sometimes I think, do we really need two meat, one fish, and two vegetarian? Is all of that food being used?"

Learning

Film services company Truenorth, headquartered in Reykjavik, supports films across the Nordics and also has offices in the Canary Island and Greece. The company helped the *True Detective* team achieve its goals while getting a sustainability upgrade in return.

"The *True Detective* production followed the Green Production Guide initiatives with Heidi Kindberg, the VP of sustainability

at HBO, at the helm," says Einar Thor Magnusson, Truenorth's CFO. "They have thorough implementation guidelines that were put in place in all departments. The biggest challenge was to change the way people work on a fast-paced film. We learned a lot from the production, and the Green guidelines from HBO are what we have as an example to follow.

"We have always worked closely with the Environmental Agency of Iceland, in order to protect sensitive landscapes, and we pride ourselves on leaving a location in better shape than we found it."

After the production was over, HBO sustainability chief Kindberg did a full analysis of the production's carbon footprint and found that it was several times less than if the production had been shot in the U.S. or Canada.

Mari Jo Winkler-Ioffreda sees the production's sustainability not as an endpoint but as a steppingstone to an even better future: "We were all working in this extraordinary country, with clean air, clean water, and low emissions, and it felt like this was all possible. What we need is government support and investments, and we need technology to catch up."

Sustainability and quality combine in Genelec's landmark loudspeakers

One of the world's top manufacturers of high-quality audio monitoring solutions, Genelec, has embraced a Finnish sustainability ethos to build products that last a lifetime

Genelec was thinking about sustainability before it was called sustainability. The company was founded in 1978 when Finland's national broadcaster, YLE, requested a loudspeaker that could operate in their radio studios. Two young acoustics graduates and Genelec's soon-to-be co-founders, Ilpo Martikainen and Topi Partanen, responded to the call. And the product brief set the company on a trajectory that it would follow until the present day.

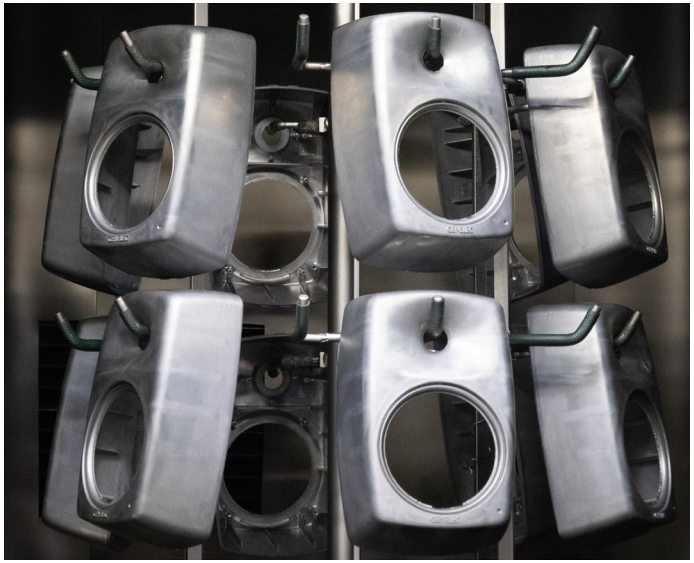
YLE needed a loudspeaker that would perform at the quality demanded of a national broadcaster. Particularly in the 1970s, national broadcasters depended on long-term reliability of high-quality equipment without being forced to upgrade every five years. YLE's loudspeaker would need to have a long lifespan and the ability to be continuously serviced and maintained for the long haul. This led to the development of Genelec's first product, the S30, which is still in daily use around the world 45 years later.

"We started building sustainable products from day one off the back of what YLE had requested," says Genelec PR director Howard Jones. "It stood the company in good stead and set us on that course."

The Genelec factory sits on the shores of Lake Poroves in Iisalmi, Finland.

But YLE's low-waste, high-quality requirements also met an already receptive pair of entrepreneurs. Martikainen had grown up on a farm and spent his early years learning that good stewardship of resources was an integral part of success. Finland's natural resources, particularly its large timber industry, encourage longer-term preservation and renewal of resources.

Moreover, Genelec was an early adopter of ISO 14001. First launched in 1996, ISO 14001 is the internationally recognized standard for environmental management systems. It provides a framework for organizations to continually improve their environmental performance.



Genelec monitors housings are made of recycled aluminum.

"Ilpo had this built-in sustainability mindset that he wanted to bring into the company."

Longevity with relevance

But creating a long-lasting durable product doesn't make for a successful business by itself. Technologies are continuously evolving, along with consumer tastes, market forces, and cultural shifts. The trick is to make a product that is long lasting yet able to stay useful and relevant in any number of new situations. Beyond the durability and the capacity to operate efficiently for a long period of time, Genelec has increasingly benefited from modularity in its products, as a buffer against changes in technology.

During the Covid pandemic, for example, a factory fire interrupted production for one of the major chip companies. Fortunately, Genelec's modular approach meant that its engineers could redesign the affected section of the product using an alternative chip and continue manufacturing.

"Having a controlled amount of modularity, so that you are able to protect against future technology changes, is good," says Jones. "But it has to be a controlled modularity, because if you've got too much piggybacking of circuit boards within a

product, you could end up with something that's less reliable. It's a balance between making something modular enough to future proof your product without making it overly complex."

Chips have reached a point too where they don't need to be upgraded as frequently. Significant product developments can happen purely in software and firmware, further helping reduce obsolescence. An increasing number of Genelec loudspeakers now utilize digital signal processing (DSP) — and as well as allowing those loudspeakers to intelligently adapt to their acoustic environment, free software upgrades have kept those DSP products developing for almost 20 years now. Additionally, introducing loudspeakers with single cable Ethernet connectivity has also helped the Genelec product ecosystem offer more sustainability — through scalability and significantly reduced cable requirements.

Material sustainability

When Genelec is building its physical products, intelligent use of materials is paramount. Recycled aluminum has been the principal material used for most Genelec loudspeaker enclosures for over 20 years. The sustainability benefits are obvious in that aluminum can be continuously recycled without losing its properties. But using aluminum also serves a technical purpose in that it allows Genelec loudspeakers to be formed into more rounded shapes with much better acoustic properties than traditional hard-edged MDF cabinets.

Genelec is also mindful of the sustainability of its supply chain. Where possible, the company tries to work with suppliers within 200 kilometers of its headquarters. Additionally, the company is guided by a Supplier Code of Conduct, which helps its decision-making in finding partnerships with sympathetic values.

But sustainability ultimately ends and starts with people, and in Finland, there tends to be a lower tolerance for inhospitable work environments than in other parts of the world.

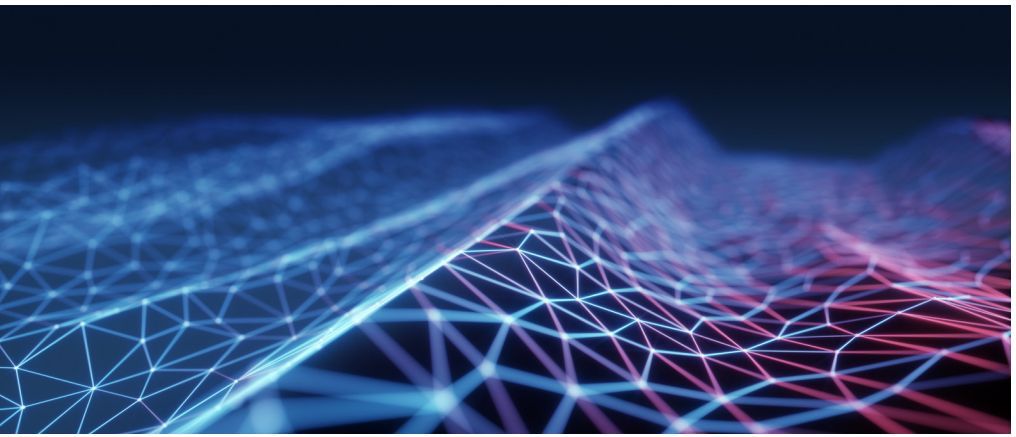
"It's great to work for a Finnish company, and it's been an eye-opener to me, the way the company treats employees," says Jones. "It's a very holistic approach, and employee well-being is really key. I've been massively impressed by Genelec in the eight years I've worked for the company. The commitment to sustainable development is palpable." ■

Being good at tech means being a good steward of what you've created

Scandinavian media tech has a lot of influence in the video delivery space. Public broadcasters were essential to their development

By Neal Romanek

Despite their relatively small population compared to many other European countries and the U.K., the Nordic countries have had an outsized influence on media tech. Broadcasting came to the region 100 years ago with several radio stations — Sweden's AB Radiotjänst in 1924, Denmark's DR in 1925, Finland's Suomen Yleisradio in 1926, Iceland's Útvarp Reykjavík in 1930, and Norway's NRK in 1933 — that would grow into major broadcasters responsible for helping spawn some of the top innovations in this industry.



Unlike commercial broadcasters, public broadcasters will have some type of remit to act in the public interest. They will often have a guarantee of resources that give them a bit more space to develop longer-term strategies. A national broadcaster may have its own R&D department, whose purpose is to stimulate innovation nationally. National broadcasters can be an engine that, in the best circumstances, pollinate development across the entire national sector.

For instance, Sweden's SVT has pioneered remote production workflows going back as far as the 2012 Olympics in London and the FIFA World Cup in Brazil, helping to reduce transport and travel and can offers substantial emissions reductions. The broadcaster has been supported by partners like Net Insight, a Swedish provider of video transport and media cloud technology, and its Nimbra video transport solutions. In 2019, SVT won a Creative Collaboration Award from The

IABM for the World's Largest IP Remote/At-Home Production, along with Net Insight, ClearCom, Arista and Grass Valley. (You can read more about the broadcaster's digital transformation in the article on p. 40.)

SVT Tech was launched over 20 years ago when it became clear that digital technology was going to transform the way viewers watched content. The Swedish broadcaster's new division focused on digital and interactive services, including its VOD platforms. The platform has been developed entirely in house, and the department now has 200 people designing and developing SVT's online services. SVT Play was launched in 2006 as Sweden's first streaming platform, although SVT first toyed with the technology for streaming as early as 1996.

Weather-tracking tech for not-so-green industries

Media technologies, however, may often have an unanticipated reach. In addition to broadcast suppliers such as graphics leader Vizrt and broadcast services provider Screen Media, Norway's TV 2 spun out another brainchild called StormGeo. Beginning as TV 2's Storm Weather Center, StormGeo now employs over 600 meteorologists, data scientists, software developers, and experts in over

16 countries with the goal of providing users with weather insights for making better business and safety decisions. The company's weather analysis software is used by industries as diverse as energy, shipping, healthcare, hospitality, insurance and retail.

StormGeo was founded by TV 2 meteorologist Siri Kalvig, who had stayed with the company for 18 years and was a board member for most of that time. She went on to become a board member in multiple Norwegian tech startups, including green-power companies like Norwegian Energy Solutions and Norsk Vind Energi and less green-power companies like Norway's national oil company, Statoil. She is now the CEO of Nysnø Climate Investments, the Norwegian state's climate investment company.

As evidenced by Kalvig's career, weather and energy are always intimately connected, but maybe more so in Norway, where most of the electricity comes from hydropower and wind. Renewable energy sources get their power from the environment, and keeping tabs on that environment is key for making the most of those resources. However, while Norway is powered by renewables, its wealth comes from oil, drilled in the North Sea. Working on an oil rig is a dangerous job in the best of conditions, but the violence of that region of ocean can make it especially lethal — which is why a reliable weather provider like StormGeo is an essential part of fossil fuel infrastructure.

In 2021, StormGeo was acquired by the marine division of Alfa Laval, a Swedish fluid management specialist that started back in 1883 by providing centrifuges for separating cream from milk. Now a major global company with customers in shipbuilding, offshore oil and gas, and diesel and gas-engine power, Alfa Laval says its acquisition of StormGeo is helping decarbonize shipping and that the use of StormGeo's digital products has saved carriers 2.1 million tonnes of fuel. Biofuels and the equipment to properly employ them for global shipping have been of special interest to the company, and it has been positioning itself "to play an essential role in transforming the fossil fuel economy into a sustainable, decarbonized, open, and inclusive world." Although this is a move in the right direction, it's hard to get around the fact that one of the company's principal markets has been — and continues to be — the oil and gas industry.

Greening from Sweden

As content delivery becomes more sustainable, it will hopefully have positive effects extending well beyond the media industry. Of the roughly 17 members of Greening of Streaming, an organization trying to solve sustainability problems in the video delivery space, two are from Sweden. Stockholm-based Varnish Software specializes in high-performance content delivery and helps speed up the delivery of web content with its Varnish Cache technology. Again underlining that media technology rarely remains

solely with its broadcast roots, Varnish has customers across multiple verticals, encompassing content companies like Sky and corporates like Tesla and Emirates.

Greening of Streaming member Agama Technologies — headquartered in Linköping, between Stockholm and Gothenberg — offers video analytics solutions which help content companies maintain high-quality customer experience. The company has helped other companies, such as Scandinavian telco Telenor, gain greater visibility and insights across their network technology to reduce downtimes and improve services.

While not technically a member of Greening of Streaming, Accedo has been a leading voice in streaming video sustainability and a partner with the organization in sustainability work. The company launched in 2004 in Stockholm with an understanding that digital technologies were going to transform how audiences consume TV. It first specialized in UX for OTT providers and now has a product portfolio that encompasses not only TV services but also enterprise video, hospitality, and healthcare. Accedo was one of the principal architects of the ECOFLOW Project, which is attempting to find better ways to measure carbon emissions in video streaming.

The development of technology is never a linear evolution, though it's easy to start believing it is when we go through the ritual of systems upgrades every few years. Because our workflows and tech habits are often very entrenched and driven by business cycles, we believe that tech naturally follows that same path. But new tools and ideas can be generated anywhere, and where they end up is not always predictable. Tech is a creative endeavor, and like any creative endeavor, it leads to unintended consequences. Our job is to make an effort to direct tech to the places it can do the most good rather than letting tech dictate the conversation.

THE FLINT

THE NORDICS

CONTENT & STORYTELLING

Project Reynir: Battling Bannon's Flood of Sh*t

A series of international efforts are working to guarantee the factuality of content

By Neal Romanek

"The Democrats don't matter. The real opposition is the media. And the way to deal with them is to flood the zone with shit."

This now infamous quote by political strategist Steve Bannon, from a 2018 interview with Michael Lewis, encapsulates a technique that has become all too familiar around the world. A strong, independent and factual press is essential to a self-governing, democratic society. To dismantle democracy, you need to turn the media space into a flood of fictions, spectacles, and conflicting narratives that overwhelm any possibility of rational thought and discussion.

In *Nothing Is True and Everything Is Possible*, a book about working at a TV producer in early 2000s Russia, Peter Pomerantsev points out that the purpose of "flooding the zone" isn't to give people bad information; it's to shatter factuality entirely, so that people ultimately assume that the truth can never be truly known — or that everybody is lying all the time, so why bother? A good number of high-profile politicians are now applying the technique to great success, lying regularly as a way to escort their followers into a fictional world.

Pomerantsev explained in an interview with The Hedgehog Review: "The Russian approach is very much to undercut the idea of truth, to always muddy the waters and confuse."

The truth doesn't happen by itself. Trained professionals — journalists, scientists, historians — must actively hunt the truth down. And then it needs to be made available to the public. And then it needs to be protected from Bannon's flood of shit.

It is now impossible for anyone to spot AI-generated image fakes with 100% accuracy, let alone text-based content generated by AI — which we have all seen a great deal of in our day to day lives, whether you know it or not. Fakes are getting easier and easier to produce, too: A Wired article from last year, "It Costs Just $400 to Build an AI Disinformation Machine," described an experiment in which fake content and images were generated at scale using universally available tools.

Guaranteeing the truth

There is an international effort among news organizations to use technology to help bolster trust and factuality in news reporting. One of these is Project Reynir, which aims to apply tech to combat the disinformation threat that's posed by AI-generated images and text.

> ***"I really believe that journalism is vital to our democracy. And I believe that journalism is under threat.***
>
> ***Helge Svela, Media Cluster Norway***

Hosted by Media Cluster Norway and green investment organization Agenda Vestlandet, Project Reynir aims to implement widespread use of new standards to track the provenance of content, from capture throughout the entire content workflow. Participants in the project include Norwegian broadcasters TV 2 and NRK; tech companies Mimir, Vizrt, Cutting Room, and Wolftech; news agency NTB; and fact-checking organization Faktisk.

Helge Svela, CEO of Media Cluster Norway, has been a journalist for his entire career and was the crime editor at Bergens Tidende, Bergen's largest newspaper, during the 2011 massacre by Norwegian terrorist Anders Breivik.

"I really believe that journalism is vital to our democracy," says Svela. "And I believe that journalism is under threat. First, the whole economical model and how newsrooms are built has been challenged. Then we see a lot of politicians and other important stakeholders in society willing to label real news as 'fake news,' or have alternative facts, or boycott news organizations. Also, there's been a real rise in disinformation — from state players, from people who want to undermine our democratic processes, from people who want to have things appear as if they're not for political or economic gains."

Content Provenance and Authenticity

The Coalition for Content Provenance and Authenticity (C2PA) is an open technical standard providing the ability to trace the origin of different types of media. C2PA combines work being done by the Adobe-led Content Authenticity Initiative (CAI) with the Microsoft- and BBC-led Project Origin, which has convened policymakers, academics, and industry leaders on responsible digital media publication and sharing.

The C2PA spec binds provenance information to a piece of media — whether photos, audio, or video — from the initial moment of creation through every edit. The tamper-evident manifest is carried by the media wherever it goes in the workflow. Anyone with authorization can see the history of the content at any time. For example, a consumer might click on an information button on an image published on a news site to see exactly how the image has been altered over its lifetime, if at all. Or a publisher could confirm that the image they are receiving from a freelancer is indeed an unaltered image, taken at a specific place and time by an identifiable individual.

Project Raynir hopes to have an 80% implementation of C2PA across the Norwegian news industry by the end of 2026, which would make Norway the first country to have large-scale implementation of the standard. The participants are all working to incorporate C2PA into their workflows in ways that can most benefit their media customers.

CuttingRoom provides a cloud-based editing suite and recording tools for journalists. The company is implementing C2PA for use in video production and editing. It's CuttingRoom Reporter app allows journalists to capture professional content with their iPhones and connect directly to the newsroom. Wolftech provides a workflow tool for journalists that will also provide a seamless C2PA pipeline for the users.

"To us, Project Reynir and the C2PA technology is important because it's important to our customers," said André Torsvik, EVP for Mimir, a Project Reynir partner. "We have customers like The New York Times, big news agencies, important public broadcasters — and we treat these customers' media both as it's coming in and as we're processing it throughout the chain. We'll work with them to implement C2PA once they're ready to build their unbroken verification."

The truth is complicated

Getting C2PA right requires a lot of understanding of how the media tech ecosystem works as well as the needs of individual content companies and their journalists, as well as the needs of the public. Making the entire provenance of a video available could put journalists or sources at risk,

and does the public really want to know about every single edit, transcode, and color correction that occurred in a piece of content? Could a flood of provenance metadata make tracking so confusing it creates the same kind of problem it was meant to solve? Should provenance tracking really be glass-to-glass? Or is glass-to-publisher the best use case? Or are their multiple use cases for different parts of the pipeline?

The final result will no doubt be a mix, appropriate to the user, scenario, and public requirements. But the ability to prove the authenticity of a piece of content could be a powerful weapon in combatting information — maybe more by its absence than its presence. While few people are going to be continually checking the provenance of BBC images for deception, the regular appearance of provenance information from a major news organization like the BBC might call into question those sources who refuse to provide provenance information.

"Media Provenance – Signing your content in practice," a paper presented by the BBC and Media Cluster Norway at IBC2024, expressed hope that the ripples of these interlocking efforts could have global effects:

"Through Project Reynir, the entire industry has come together to solve a huge challenge and agree on a common way forward to implement Content Credentials through the chain. This approach could very well be reproduced and employed in other areas, be they countries, regions, or particular industries." ■

There's a saying in the indigenous film community: "Nothing about us, without us"

The Flint sat down with Anne Lajla Utsi, managing director of the International Sami Film Institute, to discuss the institute's mission, and the importance of indigenous storytelling in today's world.

The Flint: Let's start at the beginning. How did the Sami Film Institute come about?

Utsi: We were a group of young Sami people who had gone to film school, and we tried to fund our film projects through the National Film institutes in the Nordic countries. In the early 2000s, that was quite impossible. We eventually established the Sami Film Institute in 2009 and got 152,000 euros from the Ministry of Culture in Norway.

That was our starting point. We were really happy about that. Then, we thought, "Okay, we have a Film Institute. So, what do we do now?" I called Nils Gaup, who directed the first ever Sami feature film, *Pathfinder*, in 1987. He was a great inspiration for all of us coming after him who were going into film and taking film education. In

the first years, we focused very much on capacity building: scriptwriting courses, directors' courses, producers' labs. We didn't have many Sami filmmakers at that time, except for Nils and a few others in TV. So, the first years were very much about building a new generation, supporting them with the small money we had.

> ***Indigenous stories are something the world really needs in these times of climate change and instability.***
>
> ***Anne Lajla Utsi, International Sami Film Institute***

The Flint: It sounds like you were starting from scratch. How has the institute grown since then?

Utsi: In 2011, just two years after we established, we did an indigenous film conference. That was held in Northern Norway, in the Sami village called Kautokeino on the Norwegian side of Sami land. We have the Sami university there and the Sami National Theater, lots of Sami institutions, and also our institute. We invited people from the film business worldwide — Sundance, Berlin, all the film festivals, all the Nordic institutes. That kick-started our international network and collaboration, which has been really important since.

In 2014, we did our biggest production at that time. We still had very little money, only maybe 300,000-400,000 euros. And in 2016, we got the first Sami feature film by the new generation. That was Amanda Kernell's *Sami Blood*, which was a big international festival hit. It won about 20 awards. Since then, we've been focusing very much on taking our filmmakers from short films and documentaries into bigger productions. Now we're at a crossroads where many of these filmmakers are directing or producing feature films or series.

Last year we had three feature film premieres at the Toronto Film Festival, one documentary feature. This year we had two, and next year there will be two to four. That's a lot for us. We still don't have hundreds of millions in funding, but we do have more than when we started. We get about 3 million euros annually, which in film isn't much, but we can do a lot with it.

The Flint: That's impressive growth. Where does your funding come from now?

Utsi: It's basically government funding from Norway, the Ministry of Culture, and also the Sami Parliament. About 30% on top of that is project funding, which we apply for from various sources, including international partners. We have a very good collaboration now with Netflix. They are supporting our capacity building initiatives.

The Institute recently ran a workshop with Netflix and EAVE (European Audio Visual Entrepreneurs).

We're seeing growing interest, especially internationally. In recent years, there's been a boom in festivals focusing on diversity, inclusion, representation, and Indigenous stories in general. There's one concrete network we've been part of since 2014, now rebranded as the Indigenous Cinema Alliance, which is made up of six partners and is supported by the Canada Media Fund. We've been at the European Film Market every year since 2014-15, where we have a Native Stand promoting each of our filmmakers or films. The Sami Film Institute also established the Arctic Indigenous Film Fund in 2018.

The foundation of everything we do is to preserve the language, culture, and identity, to tell our own stories and to have narrative self-determination. There's a long history of assimilation and colonization in the Nordic countries, where they tried to erase the Sami language, culture, and identity. Now there's a truth and reconciliation process in all three countries. We want to decide which stories we want and need to tell, rather than having some other institution defining our narrative directions.

> ***"There's a long history of assimilation and colonization in the Nordic countries, where they tried to erase Sami culture."***
>
> ***Anne Lajla Utsi, International Sami Film Institute***

The Flint: Can you tell us more about that Netflix collaboration?

Utsi: There's a production called *Stolen* that's now on Netflix as of last spring. We got a Sami director for that project,

as well as many Sami crew members. It's a story from the reindeer herding area on the Swedish side, and it was a big success on Netflix with about 20 million views in the first weeks. We are continuing the dialogue with Netflix, and hopefully, we can talk about other productions as well, but we don't know yet.

Even though we don't have a large number of films every year, the ones we do have are well-received. They travel a lot, which is very encouraging. For instance, there's Egil Pedersen's new film, *Biru Unjárga (My Fathers' Daughter)*. Egil was also one of our "7 Sami Stories" directors in 2014. He has been writing and fighting to get funding all these years. Finally, he got a grant from the Norwegian Film Institute, which made it possible to produce the film. Now it's premiered at TIFF and is one of two films from Norway shortlisted for the European Film Award.

The Flint: I'm curious about the content of Sami films. How do they reflect Sami culture, particularly in relation to nature and the environment?

Utsi: Most indigenous films and storytellers somehow always include a connection to nature, knowledge about nature, and traditions. Even if it's not explicitly a film about climate change and its consequences, that worldview of being a part of nature — and that nature is alive and sacred to us — is always present. It's not something that you can just exploit.

On Earth Day 2024, AMPAS held an event around Arctic filmmakers, featuring Sami cinematographer Ken Are Bongo and Sami musical artists Elle Marja Eira.

In traditional Sami storytelling, we have many stories connected to nature — underground people, spirits in the mountains or trees. Last year, there was a feature film which was a love story from the reindeer herding environment here in this village — a contemporary story about two young people falling in love. There's a scene where the grandmother is playing with her grandson, telling our creation story about how the world was created out of a female reindeer, and how the heart of the reindeer was put inside the earth. They listen to see if they can hear the heart beating.

Nature is a central element in many of our films and in the way of shooting — with large landscapes. It's interesting how this worldview informs even modern, everyday stories. I believe that indigenous stories are something the world really needs in these times of climate change and instability. There's something the Western world has forgotten or lost. Our storytelling has not only been for entertainment but also a way to survive in this harsh, cold, Arctic environment for 10,000 years. The stories contain all the knowledge you need to survive, and they're also a language to communicate with nature.

The Flint: It sounds like Sami storytelling has a lot to offer the world. How do you approach non-Sami filmmakers who want to incorporate Sami culture into their work?

Utsi: In film history, there's a long tradition of everyone else telling our stories. Indigenous peoples haven't had the opportunity or privilege. It's only in recent years that this change is happening.

There have been not-so-good examples where indigenous people, including Sami, have been objectified and exoticized, enforcing stereotypes, prejudice, and racism. It's interesting how that is changing. Internationally, there's more awareness about who is telling the story and from what perspective. More stories should have the possibility to be told from an inside perspective. It's becoming more difficult not to do it because you can't afford that criticism afterwards.

There's a saying in the indigenous film community: "Nothing about us, without us." If it's our story, we want to be part of it. Sometimes, of course, we might say no, but we encourage collaboration — not just bringing in Sami consultants or assistants but also creating collaborations that can benefit both parties.

We had a very good collaboration with Disney on *Frozen 2*. I led the Sami advisory group in that collaboration. The Sami parliaments in Norway, Sweden, and Finland, and the Sami Council approached Disney and invited them to collaborate. It was a very respectful collaboration; they wanted to do it in a culturally sensitive way. When big companies like Disney do it the right way, it's a good thing for us.

We also have something called the Pathfinder guidelines on our website. Every time we're approached by anyone who wants to be inspired by Sami stories or culture, we encourage them to read these guidelines first. Then we can talk after that.

There's nothing sus about Bridge's approach to sustainability

Bridge Technologies, based in Oslo, is trying to think holistically about nature and tech

By Simen K. Frostad

Did you know that in 2022, four out of every five cars sold in Norway were electric? And that Norway maintains the world's biggest hydropower plant, securing 60% of its energy needs?

With Oslo listed as the European Green Capital back in 2019, it's clear that Norwegian culture places a strong emphasis on sustainability and the preservation of the environment. This is hardly a surprise: If you've seen the beauty of our fjords and forests, you'll understand why, as a nation, we're keen on preserving them.

At the Bridge Technologies offices, if you gaze out of the window into the car park, you will see, aside from the roaring Akerselva River, two very distinct approaches to environmentalism — a peculiar mixture of old-school pedal power and cutting-edge EVs. Tradition and technology both have a role to play in securing our collective future.

But it's not just outside of the offices that you see sustainability efforts at play; there's plenty to discover inside, too. We are working to embed sustainable thinking into our practices and products, from the point of manufacturing, through to their distribution, and in their very design and functionality themselves.

Reduced energy consumption and product longevity

Bridge's VB220 and VB330 monitoring systems are designed to operate as either appliance, embedded, or software solutions, depending on customer needs. One of the fundamental motivations for this variety in deployment types is to enable customers to reduce their energy usage. While a server can run from anywhere between 200 to 1000 watts, our embedded probes draw as little as 25 watts. This reduced energy draw not only enables customers to deploy in contexts where electricity is harder to access or unreliable; it also ensures customers are able to reduce their energy

consumption and environmental impact, thus upholding their ethical duty towards sustainable operation.

This reduced energy draw and reduction in hardware complexity means that Mean Time to Replacement (MTTR) is significantly increased. A server generally requires replacement in five to seven years, but a probe can be relied upon for a much more sustainable 15 years.

Bridge solutions embed multiple functions within a single unit and thus eliminate as many as 24 rack units of equipment. They also eliminate the need for devoted displays by facilitating access from any HTLM5 enabled browser. Bridge products don't just reduce customer OpEx; they are an aid in reducing electronic waste. Bridge probes also entail a reduction in hardware requirements, making for a more lightweight deployment in OB vans (particularly through the reduction of cabling), which itself has knock-on reductions in fuel consumption.

Add to this the idea that our probes are designed to facilitate access from anywhere in the world. In the case of the VB440, this involves joining up the expertise of producers, camera operators, audio technicians, and a load of other creatives — all of whom can access image and audio data metrics from anywhere in the world. This means that moving production professionals around the globe or making sure they are transported on-site becomes less necessary: A camera operator in Los Angeles and a sound engineer in London can both contribute in real time to a production being recorded in Paris. This substantially reduces the carbon footprint associated with the movement of personnel.

Sustainability throughout the full product lifecycle

Our engineers are encouraged and incentivized to incorporate sustainably into their design process, not only in terms of the function of the product but also in its materials and manufacturing. Bridge has sought out manufacturing partners for their full range of probes with a key focus on the environmental credentials of those manufacturers. At the heart of these manufacturing processes are mechanized steps designed to maximize efficiency, particularly in relation to PCBs.

Moreover, since 2008, Bridge has shipped all its equipment to customers using fully recyclable packaging, with organic ink used for all printed materials.

Bridge Technologies' commitment extends to the end of the useful life of our products. To prevent the generation of hazardous waste, Bridge undertakes the responsibility of taking back and recycling electrical and electronic equipment. We not only maintain our obligations in accordance with the WEEE directive but also maintain partnerships with environmental schemes, which replace or supersede European requirements or even extend them to non-European contexts.

We do recognize it's an ongoing and incremental process with constant room for improvement. But it's an improvement we're committed to, individually and collectively. Because with a view like this, how could you not care?

#VB440
REMOTE PRODUCTION
ANALYTICS

ST 2110, ST 2022-6/7, PTP, AES67, ST 2110-41, DOLBY®, JPEG-XS, SRT, HDR - VIDEO & AUDIO

The VB440 IP probe provides a break-through for the monitoring and analysis of high-bitrate broadcast media traffic as defined in ST 2110 and ST 2022-6/7 for core broadcasting net-works, production studios, master control centers and outside broadcast vehicles and venues. It enables production teams to continuously survey all layers of media transportation on an IP network, and facilitates quick rectification of potential problems, helping to maximise the Quality of Service (QoS).

BRIDGE TECHNOLOGIES™

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What did we learn?

The Nordics' big sustainability brag isn't their low carbon energy sector — it's their high-quality social welfare system

By Neal Romanek

Thanks for joining us on this trip to the Nordics! A visit to five countries, and the only fossil fuels you burned are those powering your device right now. And powering the networks to bring it to you on demand. And keeping this file accessible to you day and night until the end of time. Maybe print publications aren't all bad.

We hope you learned a few things. We certainly did.

One theme that became quickly apparent was the number of women we interviewed. It is generally true that the gender split in the sustainability world is less male-skewed, and this may change as more money starts to flow into sustainability and those jobs become more highly paid...it's an old story. But the greater gender equity in the Nordic countries was really apparent from the moment we began the project.

This equity varies, of course, from country to country. Pernille Callessen of Denmark's NXTV had no reservations about pointing out how women tend to get elbowed out of production positions. But on the whole, it was obvious how much more visibility women have in the Nordics than in The Flint's home country of the U.K. — and certainly more than in countries like the U.S., where gender equality has been and is being aggressively curtailed.

Beyond its positive social and economic benefits, empowering women is an important boost for the environment. The U.N. has pointed out that climate change is causing disproportionate harm to women and girls, and that "women's representation in national parliaments leads to the adoption of more stringent climate policies, resulting in lower emissions. Their leadership in the workplace is associated with greater transparency around climate impact. And their participation in local natural resource management is linked to better resource governance and conservation outcomes."

Government help, private responsibility

We saw that the Nordics are leading in decarbonization, although some of that is the head start given by geography — Icelanders have zero-carbon energy on tap beneath their feet. And despite this fast decarbonization of power grids, decarbonization of transport and other sectors is still too slow.

This is not to ignore the positive legislation that has pushed forward greener initiatives. Having government-level commitment toward greater sustainability allows for things to happen at scale that would be impossible to accomplish with businesses and individuals acting independently.

But making government the source of all policy can remove responsibility from the private sector. Among individual companies and broadcasters — Sweden's SVT, in particular — there has been solid activity in reducing environmental impact, but the creative sectors on the whole don't seem to have planned much for the changes ahead. And there will be changes. Sustainability will encompass more than just fully decarbonized energy. If we're going to get through the next thirty years, there will need to be transformation in just about everything we do.

The prosperity dilemma

While the Nordic countries have a lot going in terms of decarbonization, waste management and equity, they are still disproportionately high consumers. The paradox of having healthy economies and a high-quality social welfare system means greater personal freedom, and with freedom comes power, and with power…well, you know the saying.

Despite being caught in the prosperity dilemma — e.g., how do you not spend your money on wasteful, polluting stuff? — the combination of environmental awareness, plus solid investment in citizen welfare, puts the Nordics in a position to make changes more rapidly than most.

When countries are under pressure — just like individuals — change can appear doubly threatening. A population already pushed to the limit will be hard pressed to make more sacrifices, even if it means a better future. But when a solid social safety net is in place, those changes become much more doable. The Nordics' high-quality social welfare systems have already facilitated positive changes and will continue to make future changes smoother, assuming their governments stay on the same path.

Our big sustainability takeaways from the Nordics are not the technical and logistical implementations but the principles of equity and worker support. They show us that if you put people first, it's possible for sustainability to follow more easily.

Flint Focus: Canada

Coming 2025

Sustainability, eh? Join us on our next regional deep dive, as we travel to Canada to talk to media professionals and companies making a difference from Vancouver to Toronto to Nunavut.

We'll cover:

- Sustainable production in Vancouver
- The green power of the CBC
- Indigenous filmmakers leading the way
- Producers coming together for change
- Who's who in Canadian sustainability

Contact The Flint to make sure your story of Canadian creative sustainability is included!

For editorial queries, Neal Romanek, Editorial Director: nromanek@theflint.media

For commercial queries, Neil Howman, Publisher: nhowman@theflint.media

THE FLINT is the creative sector's top source place for sustainability knowledge-sharing. We provide top-quality journalism and events covering all angles of sustainability across multiple media industry verticals, from TV to gaming to advertising to live music.

Our content is aimed at fueling positive change in the media industry across multiple platforms and outlets:

- Website (theflint.media)
- Weekly newsletter, The Spark
- Monthly podcast
- "Flint Forum" webinar series
- Special publications (like this one!)
- Live events (The Flint Green Line)

We want to hear your stories — the successes and the challenges — about using the media biz to create a better future. Contact our editorial director Neal Romanek at nromanek@theflint.media.

Our Audience

The Flint's readers are a highly energized cross-section of the entire global media & entertainment industry, with a readiness to spend time, energy, and resources on improving the industry's relationship to planet, people, and prosperity. These people tend to be decision-makers, working not only in sustainability but also tech, operations, and content.

Over half of The Flint audience is in the U.S., with 21% in the U.K., 20% in Europe, and the remainder in APAC, Africa, and LATAM. Our readers are highly engaged with our content, which translates to very high open rates and click-throughs.

In the next year, The Flint aims to boost its audience among members of crafts across the media sector with greater engagement with trade associations and professional organizations.

Advertising

The Flint consults with organizations on sustainability communication and also offers high-end content creation for those who are taking sustainability seriously. No matter where you are on your journey, The Flint can help. For a consultation call, contact publisher Neil Howman at nhowman@theflint.media.

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