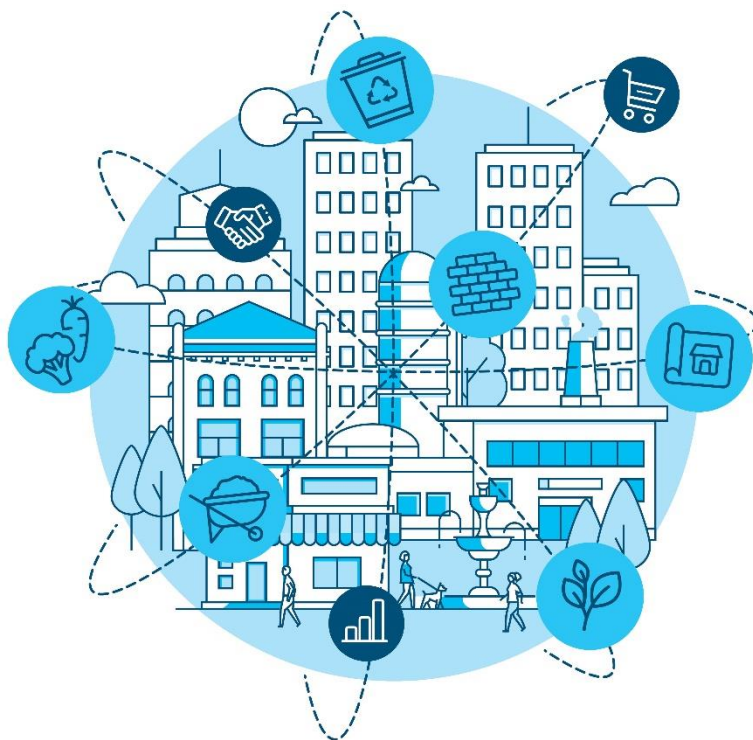




Stakeholder engagement in Bodø

Extract from the Demonstration Report

Bodø, Norway



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This text describes Bodø’s experience in circular procurement in the development of a new procurement strategy and the demolition and construction tenders in the city. The sections come from Bodø’s CityLoops demonstration report available [here](#).

Stakeholder and citizen involvement in city development by use of innovative tools

The large “New City / New Airport” project has three main actors: the military, Avinor airport and the municipality. The citizens are a large interest group. Bodø has included the stakeholders in the transformation of the airport and the new city from the beginning. They want the professional stakeholders (e.g., construction consultants, entrepreneurs, architects) to engage in dialogue on practices of screening and selective demolition. Bodø has involved both professional stakeholders and citizens in a dialogue on how to repurpose and prolong the lifetime of existing buildings and materials when designing the new city.

Tools and activities

- Involve citizens in the development of the new city district
 - Involvement through events and campaigns to find and design the solutions for the new city in models, 3D-visualization and Minecraft (computer game)
- Establish internal alliances and strategy between departments of environment, urban planning and communication in Bodø Municipality
 - Network for circular soil management and working groups for circular procurement and circular construction
- Convene and facilitate a local circular economy ecosystem of business, industry, civil society organizations, research entities and public actors
 - Conferences, events and workshops about circular construction with all stakeholders above.

There have been collaboration as different city projects for example “Smarter Transport Bodø” and “New City New Airport” have emphasized that Bodø municipality’s priorities lean towards the environment, circular economy, seeking opportunities for waste materials, recycling of concrete and diminish emissions while at the same time involving stakeholders and using digital tools for better planning.

«The world's» smartest city

A smarter Bodø is all about putting people in the centre of attention. The aim for a smart city and municipality is to improve the quality of life for the inhabitants by utilizing new technology.

But it is also about creating change through involvement. These processes have to be anchored in a sustainability perspective, and Bodø shall have a role in implementing the green shift. The future of Bodø shall be developed in a cooperation between the municipality, the inhabitants, business and industry, institutions and volunteers. The inhabitants shall be involved in order to highlight needs and wishes. In this way, we will encourage creativity, involvement and a sense of community. This will create support and legitimacy to the selected solutions.

In both of the big development projects, «New City – New Airport» and «Smart Bodø», the municipality is working actively together with many national and international partners in order to develop innovative project initiatives. All of the projects share a strong connection and degree of innovation and they are often involved in full scale pilot testing.

The municipality of Bodø is involved in several R & D projects under the Smart Bodø umbrella. These are connected to energy efficiency projects in existing buildings, circular economy and waste as a resource. Examples of this are

projects within sustainable renovation in the existing city (temporary storage of waste in pressure containers below ground level) and cleaning and recycling of concrete connected to «New city – new airport». Bodø municipality is also working on a project on sustainable freight transport in Bodø, which represents an important part in strengthening Bodø's position as an intermodal transport hub also in a low emission society. Bodø airport is already a designated pilot for autonomous plowtrucks and remote operated control towers. In addition to this, a new, modern and smart airport will be built in Bodø during the years 2024 to 2026, and the ambition is to be an exhibition of future oriented technology, logistics and innovation.

Artificial intelligence already plays an important part in Bodø municipality's city planning and the planning processes shall be 100 percent digitalized. Furthermore, artificial intelligence will be relevant in CityLab Bodø – a physical and virtual lab – which will be set up at Stormen library during the spring of 2018. CityLab Bodø shall facilitate the citizens' involvement in the development of a smart city today and in the new city area in the future. For example, CityLab Bodø enables the municipality to involve the inhabitants in the planning process in a totally new way. The inhabitants will for instance have the opportunity to «see» proposed solutions and planning documents by using HoloLens.



Figure 1. Extract from the Smarter Transport Bodø plan from Nordland's County¹

¹ Smarter Transport Bodø. Retrieved from: https://static1.squarespace.com/static/5b68390de74940b2c83a8101/t/5dcbf5ec37b5697e37471bbe/1573647872659/Smarter_Transport_Bodoe_English_Edition.pdf

The Reuse Lab – Citizen’s involvement

The inhabitants of Bodø are important stakeholders in the new city and new airport project. Needs and preferences of the citizens are connected to the outcome rather than the building process. The focus of the citizens involvement is therefore focused on design of solutions in a sustainable new city to be built. They were invited to imagine and build concepts or parts of the new part of the city based on circular principles, for that reason, used household waste and materials were the departing point for them to generate a physical model their ideas for the use of waste in construction projects such as in the images shown below:



Figure 2. The Reuse Lab were arranged two times. The first time the library served as a CityLab, the second time Folkets hus (The people’s house) were the arena for the arrangement.

Process:

There has been a strong collaboration with Nordland research Institute as well as funding application from the Norwegian research council, that funding was used to pay a compare RE Innovasjon, as they gather waste, and they plan to reuse it with clean and ready to use materials. The initiative was promoted on social media (Facebook, LinkedIn and Instagram) and two local newspapers Bodø Nu and Avisa Nordland, then they received the concepts and feedbacks from the city lab and presented it to the decision makers in the municipality.

Collaboration: Initiated collaboration with Nordland Research Institute as an academic partner, and Re Innovasjon as an operational partner that contributed with household waste.

Participant engagement: Contacted local newspaper to promote the arrangement. Schools were contacted directly. An arrangement on social media was created and shared through LinkedIn, Facebook and Instagram.

Outcome and values: The arrangements resulted in inputs from citizen on how the new part of the city can look. The value of this is not only a contribution to what some citizens wants prioritized in the city development, but also a signal of citizen involvement.

Competence forum

The construction sector is a key stakeholder in a sustainable and circular construction of the new airport and city. The relevant actors in the construction sector include contractors, building entrepreneurs, demolishing companies, consulting companies, technology companies, retailers, waste companies and more, consisting of a high number of small to large actors with varying ambitions within circularity and sustainability.

Process: To get in closer contact to the sector, understand the current status and identify relevant actors, Bodø municipality initiated a forum for all involved actors in the construction of the new airport, called Kompetanseforum (Competence forum). Many of the relevant actors were identified to be hard to get to join long seminars and activities outside their main working field, and it was decided to keep the forum as concrete and relevant as possible and to keep them to less than half a day. The scope of the forum was decided to be sustainable city development, and thereby larger than only circular construction, to be able to fit the needs of more actors.

The forum was to be tested for one year, during 2022 before evaluating if it should be kept alive. A budget of approximately 15 000 EUR was dedicated by Bodø municipality to arrange a series of events, involve the right participants, and invite the most relevant competence in research and development within the field in Norway to share their knowledge.

Four events were conducted during 2022, with the topics: Overall environmental goals of the new city and new airport; zero emission construction and city development; building material reuse; and energy efficiency. Each event consists of presentations about the topics relevance for Bodø, presentations from some of the foremost

researchers on the field and a workshop/discussion of how the sector can work on the field in Bodø new city and new airport.

Prior to the events communication with the sector was important to concretize the topics to be interesting. As complete as possible lists of companies and people that should be interested in the topics was created, and much work was made to reach out to the participants by email or phone to invite and discuss. Participation forms were sent to the list before the event. A week before the event the participant lists were evaluated and the relevant participants that were not registered were contacted and reminded. Spending time on invitations and discussions prior to the event has proven to be a key to a successful event.

The **material reuse event** was arranged as a continuation of a seminar about circular construction in Bodø. The competence forum was arranged as the last part of the day, inviting representatives from establishing systems for reuse mapping, evaluating reuse potential for segments of building materials, experience from material marketplace from a different city and from reuse in large building projects. The last part of the event was set up as a workshop. The overall goal of the event was to get an overview of the current state of mind of the sector, to identify current initiatives and to get the discussion started in the sector.

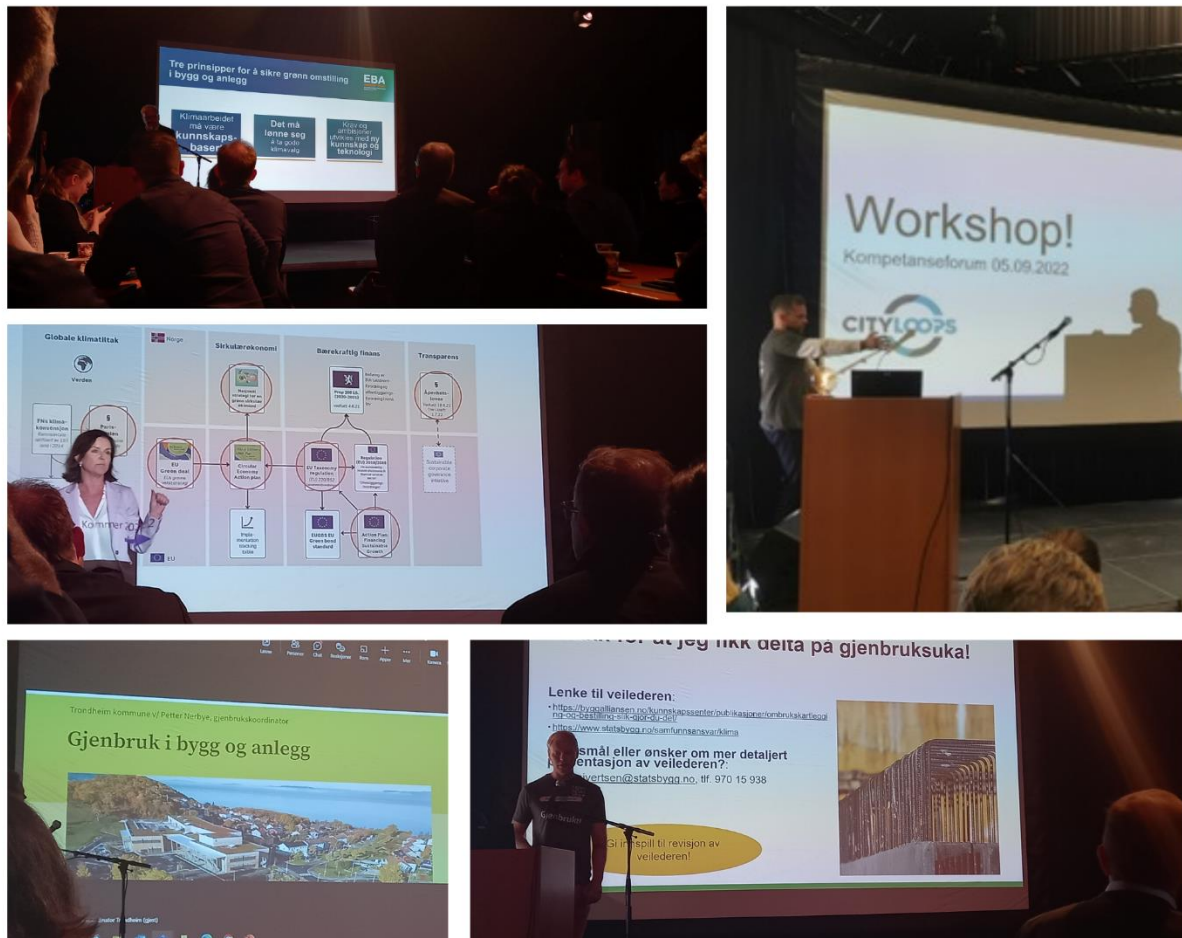


Figure 3. Images from different participants during the competence forum.

Collaboration: A team consisting of representatives from different departments in the municipality, including the New Airport New City Teams

Participant engagement: CityLoops Stakeholder analysis used as a contribution for selecting special invitation to actors in the relevant sector.

Outcome and values: Input from stakeholder with possession of relevant competence on how a market for reuse can be established.

Procurement Workshops

Internal and external stakeholders, public and private, have provided the project with inputs that has been important in the preparation of a green and circular procurement policy in the municipality.

Process: an invitation to relevant stakeholders was sent to initiate the discussion about how procurement could be used as a tool to stimulate the acquisition of products and services considering to a higher extent aspects related to sustainable development and circularity.



Figure 4. the second procurement workshop. New procurement strategy is evaluated.

Collaboration: Departments from the municipality, including the building & property dept., technical dept., New Airport-team, and procurement dept. participated.

Participant engagement: CityLoops Stakeholder analysis used as a contribution for selecting special invitation to actors in the relevant sector.

Outcome and values: Inputs and comments to new procurement strategy from experts and stakeholders.

Internal network Bodø municipality

Internal logistics and not well-established communication paths within the municipality, this is identified as an important barrier to increase circularity in the municipalities own building projects.

Process: Understanding how the internal processes and how they relate, as well as trying to increase the degree of communication within and with other departments was a big part of this action.

Collaboration: The work with road and infrastructure constructions and building constructions is divided in two separate departments. To ensure robust integration of sustainability development work, formal internal networks with regular meetings have been established.

Participant engagement: The networks are focused on circularity, climate gas reduction and sustainability, and include representatives from planning, implementation, procurement and development departments.

Outcome and values: The network with road and infrastructure has been a successful way to understand different perspectives and integrate sustainability in projects and municipal strategies, but it is a job that needs continuous development and strong communication.

North Norwegian Europe Days in Bodø

Created awareness of the importance to be ready for innovation for the green transition as part of a series of conferences in Norway that involved citizens, private sector, academia and public sector employees. In the panel called:

How can northern Norway realize its potential in Europe's green transition through public-private cooperation?

There were a set of discussions about generating value for society and its implications, how to do public and private cooperation happens in practice, innovation as an engine for the green transition, and it was emphasised a call for action from everyone who participated.



Figure 5. Northern Norwegian European days conference.

For more information you can find the program here:

<https://www.northnorway.org/europadager-2022/bodo-programbeskrivelse/>

Tekna conference

Tekna is a Norwegian organization for members who have a master's degree in technology, science, or natural sciences. They have about 100,000 members work every day to solve society's challenges through innovation and new technology. According to their website, Tekna is the largest master's association in Norway, and the largest association of academics.

CityLoops participated in the conference with the name:

Technology, sustainability, and innovation in Bodø municipality

It was presented at the centre for sustainable development in Bodø, called Kraft., the set of presentations were related to why it is important for the city to reach the goals,

how we can use technology to reach the SDG, how the CityLoops project can help to reach those objectives. A demonstration of how the digital Twin works and what it can be used for, the successful case for Emission-free construction site, urban development projects, the material flow analysis in Bodø, and how to use technology for urban farming supported by entrepreneurial actions.



Figure 6. Collage from the presentations held at the Tekna conference.

For more information you can find the program here:

<https://www.tekna.no/kursarkiv/44000/teknologi-barekraft-og-innovasjon-i-kommuner-i-bodo-kommune-44791/>

New City Festival

Survey conducted by Bodø municipality and CityLoops where the goal was to identify how Bodø's inhabitants wanted to new part of the city to look and function. Results

were interpreted, visualised using the 3D tool, and presented at the New City Festival in 2020.



Figure 7: Extract from local newspaper. Translation: “Look at the pictures – this is what the people want”. Screenshot from the CityLoops 3D visualisation tool is used in the image.

Process: Create an online survey and distribute it to all citizens of Bodø using digital support, as well as interpreting the results with a 3D visualization tool.

Collaboration: Communication department and New City Team

Participant engagement: Social media and newspapers.

Outcome and values: Inputs and comments on how citizens want the city to be developed. This data was modelled for the 3D Tool.

Minecraft challenge

The city's younger generation were challenged to create their new city concept in Minecraft, taking into account the municipality's priorities regarding circularity and other environmental factors like emission free construction zones. The results were presented, and an award was given to the best solution. The best solutions are presented to politicians and decision makers in Bodø municipality.



Figure 8. The terminal building, built in Minecraft.

Process: Use expertise to create a model of the new city area and the terminal building

Collaboration: Technical department and communications department.

Participant engagement: Social media and newspapers.

Outcome and values: Inputs and comments to how citizens want the city to be developed. Citizen involvement.

Dissemination

Invitations to collaborate and disseminate information from different forums and for diverse target audience are crucial to continue generating awareness at all fronts. And it has been welcomed, initiated, and stimulated, all the opportunities that we find to

help others and share our experiences matter and have been very much valued throughout the length of this project.

One example can be the collaboration where the Project leader Of CityLoops Bodø, was invited to participate in a podcast from the Nordland County to reflect on environmental solutions in a podcast called:

Can we reuse ourselves from municipal collapse? Thinking about recycling doesn't have to be expensive. (Translated from Norwegian)

Where he gave some circular summer tips from the perspective as head of development and sustainability at Iris Salten the local waste management company. This is particularly important because Bodø is one city with about 52,000 citizens but the Nordland County is a bigger regional instance that governs and impulses regional development in a vast number of cities in Norway included in its competence, and of about 240,000 inhabitants. Local actions have a bigger positive impact for regional development.

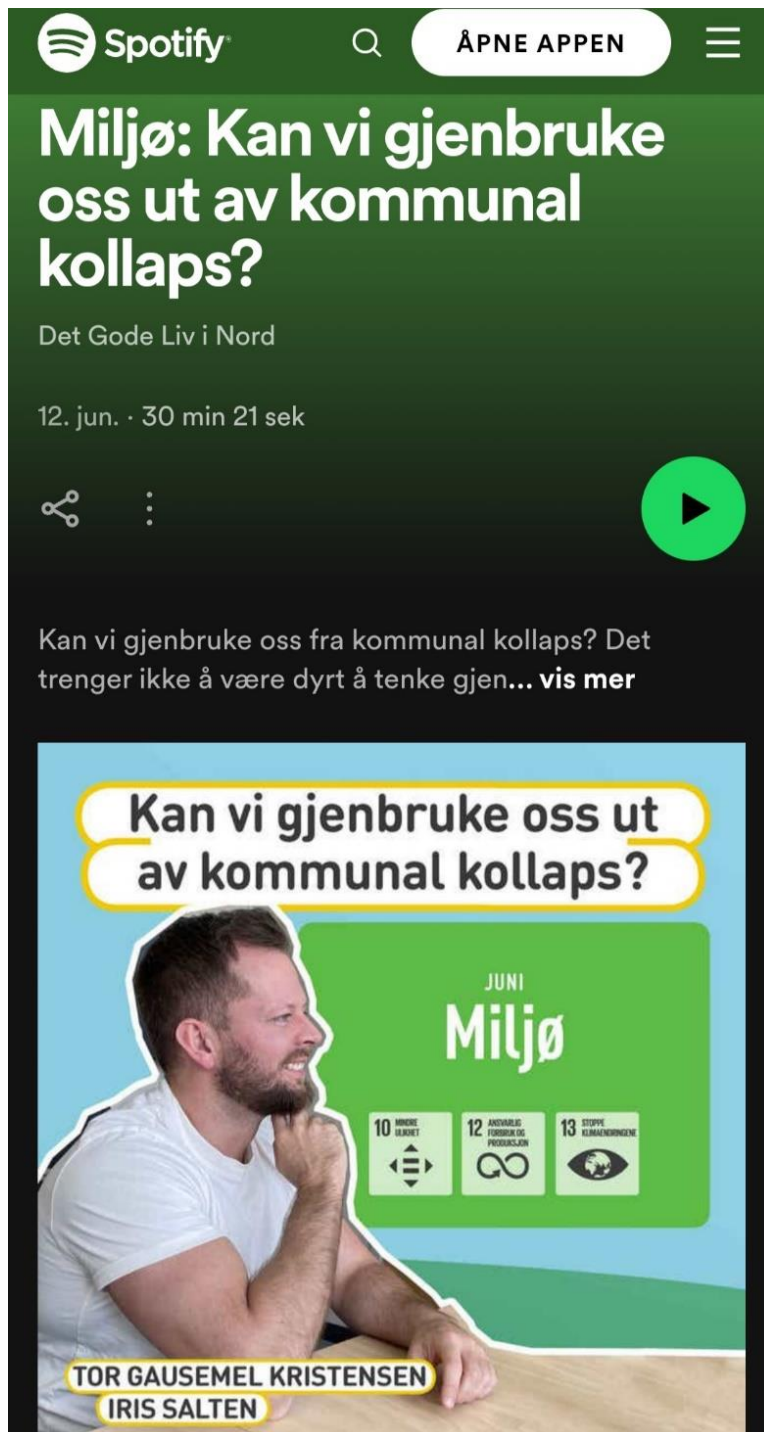


Figure 9. Environmental podcast providing circular summer tips for Nordland.

You can find the podcast here:

<https://open.spotify.com/episode/6U0ix9s2cgsA9yOfwSkh1S?si=30badf27ed3f4ea3&nd=1>

Parallel missions

A tender was created where architect and city planning companies were challenged to create concepts for the new airport, taking into account the municipality's environmental priorities. CityLoops was responsible for preparing the requirements regarding circularity in the qualification criteria.

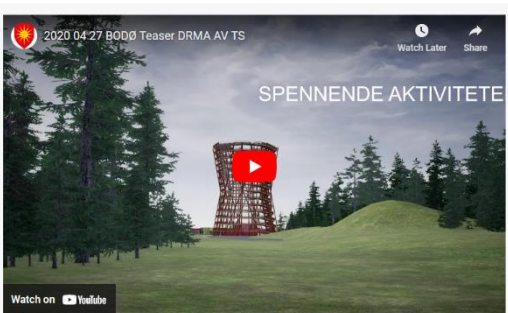
Three companies were chosen to work for 3 months with their concepts.



[Last ned rapport her \(PDF, 56MB\)](#)



[Last ned rapport her \(PDF, 80MB\)](#)



The mission resulted in three concepts, including reports of 150-200 pages consisting of technical information and models on how the city would function.

One example is the company Nordic Architects concept called Circular Bodø. This concept was modelled in the 3D Visualisation tool to evaluate its hypothetical effect on the city.

In the concept, there was focus on for example:

- The Strategic construction enabling deconstruction rather than demolishing in the future.
- The fact that the most sustainable buildings are already built.



Det sirkulære nabolaget

Nullutslippsnabolag tuftet på sirkularitet

Det sirkulære nabolaget er et miljø for et nabolag basert på de syv prinsippene i sirkulariteten. Både plan og bruk av rom vil være de tre store elementene for Bodø 2.0 og de tre sirkulære identitetene kan implementeres på nabolagsnivå.

Med fokus på kunnskap, innovasjon, folkehelse og helsebegreper er et av de viktigste å lage et nullutslippsnabolag, med inspirasjon fra både

Zions Erssonen Neighborhood og BREEM Community som utgjør ressurser i et sirkulært.

Et mangfoldig nabolag i form av varierte funksjoner, forholdsvis arbeidsprosesser, natur og landskap. Et nabolag med sterk identitet og sosialt fellesskap som tar utgangspunkt i Bodø-boende kvaliteter og ser på hvordan disse kvalitetene kan videreføres i fremtiden.

38



STL 40.000 med 1245 boliger!
 TOTAL BOLIG 17.000 M²
 TOTAL FORRETNING 3.000 M²
 TOTAL KOMMUNE 8.000 M²

Translated: *The circular neighbourhoods*

Identitet

Arkitektur og materialitet

Byrommene og arkitekturen i det sirkulære nabolaget tar utgangspunkt i Bodøs skala og karakter. Ved å studere byrom, bygningsmiljø og landskapstrekk har vi funnet frem til et formspråk som bygger videre på det som allerede eksisterer.

Bebyggelsen tolker takformene, og bruker i stor grad taket for å bygge ned skalaen på de større byggene. Enten ved å terrassere, eller ved at over 50% av bygningen visuelt sett tilhører taket. Storparten av ny bebyggelse er planlagt med utstrakt bruk av tre i både konstruksjon og kledning. Karakteristiske kvaliteter ved Bodøs trehusbebyggelse som stående kledning, massivitet, fargepalett og oppdeling av fasade videreføres.

Med fokus på å forvalte ressursene på en best mulig måte stilles det høye krav til det bygde miljøet. En av de viktigste bærekraftstiltakene er å investere i kvalitetsarkitektur med høye ambisjoner i både utførelse og materialbruk. Videre planlegges byggene for å kunne demonteres slik at materialene kan gjenbrukes til nye formål i fremtiden.

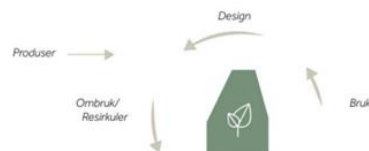


Mer enn 50% er "tak"

Stående tømmermannskledning

Oppdeling av fasade

Markert sokkeletasje



Scalability

The methods on stakeholder involvement are described in a guide and made available for replicators. Stakeholder involvement activities are very replicable, and manhours are often the biggest resource needed to execute them.

For more information you can visit.

<https://nybybodo.no/ny-by-ny-flyplass/ny-bydel/hvordan-vil-du-at-den-nye-bydelen-skal-bli-1>

Academic collaborations

NORD University

CityLoops has formulated a set of municipal problems and challenged university MSc-students to come with solutions to this. Some of the problems stated:

Case 1

You are asked to give an advice to project manager of city of Bodø that is planning to build a huge, new public building. Their ambition is that this building shall be made

solely of reused materials (you can consider e.g., construction and demolition waste project (CDWP), namely Bodø, New City – New Airport project). Please discuss and analyse how this can be done, and identify opportunities and barriers in operationalizing such ambitions?

Keywords: reuse, materials, SWOT, public procurement, circular economy principles

Case 2

The city of Bodø needs an overview over where potentially reusable resources that are located in the city. With the ambition of being more circular city, Bodø aims to utilize technology (ICT) to larger extent. Please discuss and analyse how technology, like visualization/digital twin can be used to get insights on the location and amounts of a city's resources that can be reused?

Keywords: digital twin, sustainable technology, data, visualization. circular economy principles.

Case 3

The city administration wants to develop part of the city with zero CO2 emissions and plan that it will be an energy saving area. Describe and analyse how the excess of energy as a part of circular economy can be transferred to other consumers in this area (e.g., companies, organizations, individuals) and in what ways this excessive energy can be re-used.

Keywords: zero CO2 emissions, excess of energy, cycle of energy flows, circular economy principles.

Case 4

The city administration wants to be more circular. The city does however lack of knowledge on how exactly circular the city is. Please discuss and analyse how would you perform a scan of Bodø to identify its degree of circularity?

Keywords: circularity scan, city metabolism, circularity degree.

Case 5

The city of Bodø is planning to improve its practice of circular public procurement, by defining new environmental criteria in its tenders. Please discuss and analyse how would you do this? Which criteria would you include and how would you communicate such city's demands to suppliers?

Keywords: circular public procurement, award criteria, market involvement.

Case 6

The city of Bodø is about to carry out several huge construction projects the coming next years. The city has set its ambitions high with regards to sustainable and circular use of materials in these projects. The city wants to involve stakeholders (private persons and businesses) in these processes to get access to competence, but also to act in line with the city's citizen involvement policies. Please come with suggestions on methods the city can use to involve stakeholders in city development processes.

Keywords: citizen involvement, stakeholders, circularity, co-development.

Case 7

During next years, excess materials with no specific purpose (from construction projects in Bodø city) are expected to be made available. This can be e.g., concrete elements, woodwork, rock, furniture, glass, etc. The city of Bodø wants to evaluate whether these second-hand materials can be used for art and decoration in different spaces in the city. Please come with suggestions on how materials can be reused for the purpose of art. Be creative and make your own assumptions on available materials.

Keywords: reuse, upcycling, art, excess materials.

Case 8

The city of Bodø is the new owner of a huge area in the city after a military airport is relocated. On that site, there lies about 4000 concrete slabs with the dimensions of 2x2 meters. Please advise the military and the city of Bodø on how these concrete slabs might be reused.

Keywords: circular economy implementation, concrete, slabs, reuse, upcycling, architecture.

Case 9

Demand and accessibility of reused materials often happen at different times. Describe a system and how it can be set up to overcome the barrier of time differences of supply and demand. Use the construction sector and reuse in the planned new city district in Bodø (Hernes) as a case.

Keywords: circular economy cooperation, circular system development, construction sector.

Case 10

Describe and visualize the flow of materials and economy of one of the important sectors in Bodø (e.g., construction sector, fisheries, aquaculture, waste sector etc.) Analyse the flows and suggest measures on how it can become more circular. The system boundaries can be decided on

The students have by two occasions presented their suggested solutions to the municipality, where several departments have been present.



Figure 10. Student presentations for circular economy development in the city after their own analysis and reports with cases from CityLoops

Theses

In addition to challenging MSc-students on these themes, CityLoops representatives in Bodø Municipality have held guest lectures at the university. The collaboration with NORD University has had several fruitful results, including: three master theses:



One master thesis explored how and if Bodø Municipality have been practising circular procurement. Data gathering was conducted, and a representative selection of tenders in different categories were compared to best practise examples from the EU. A set of recommendations were made based on this analysis. One of the recommendations was to increase the practice of early market involvement in procurement tenders.

A new student was challenged to analyse whether this is practised in Bodø municipality. A set of recommendations to increase the degree of early market involvement was prepared.

A recent, master thesis, now in evaluation process and it analysed whether CityLoops initiatives have resulted in improved circularity in procurement competition announcements, as well as market dialogue with information from the years 2019 to 2022, the results show that there has been improvements in circular criteria, as well as the level of specialization in the developing of the tender basis; that market dialogue is crucial for the good result of a tender; and that it appears to be easier for procurers in Bodø to set circular criteria to products than to services. The last thesis recommended to develop a routine to have readily, available and up to date data from procurement by using tools for visualization, for example the digital twin to support decision making processes.

Saxion University

A collaboration with Saxion university was encouraged by the CityLoops team to receive students for one week, they were staying at Nord University with their professor, During their visit, different activities were arranged, lectures with students from Nord University, a visit to the Municipality, a visit to the Airport which was in fact one of the priorities as they came to evaluate possibilities to reuse materials from the old terminal and provide suggestions for the outcome when the old terminal became a part of the new city district in Bodø.

Figure 11. Screenshots from the video made as part of the student visit by Bodø Municipality's communication department.



The students were in Bodø for a week, and they were provided with information about the city and the terminal building such as the architectural drawings and maps for their further development.

After they left, they worked for about two weeks in their proposals that were then presented to the municipality's colleagues of the CityLoops project, as well as their professor.

The presentations were recorded, and they as well as their suggestions are to be sent to other municipal authorities and employees to evaluate their potential and provide more ideas for city planning from different perspectives.

You can find the video here: <https://fb.watch/lb1NnwnuY3/>

the reports from the groups of Saxion university were divided into four.

The first group focused on repurposing the building for the young population of Bodø's city, among their ideas, the development of a sky club, a nightclub, an arcade, and a snack bar similar to a kebab shop was suggested, as they think that it is important to have a place for young population if the goal of the city is to attract young people to stay and settle down here.



Figure 12. Screenshots from the first presentation of students from Saxion University to Bodø Municipality.

The second group emphasized the need to focusing on the building's functionalities while including climate and environmentally friendly suggestions, they wanted to keep the structural parts of the building, as well as the exterior but to do minor adaptation changes in non-structural parts of the building, as well as repurposing structures, such as the communications and vigilance tower to be transformed into a climbing tower.

- *The functional quality of the design, tailored with the chosen solutions to meet the client's functional requirements:*



Figure 12. Screenshot from the second presentation of students from Saxion University to Bodø Municipality. And the proposed climbing area for the airport's vigilance tower.

They had some interesting proposals to reuse different areas of the building while focusing on universal design for people with reduced mobility., as well as the design of a roller skate track.

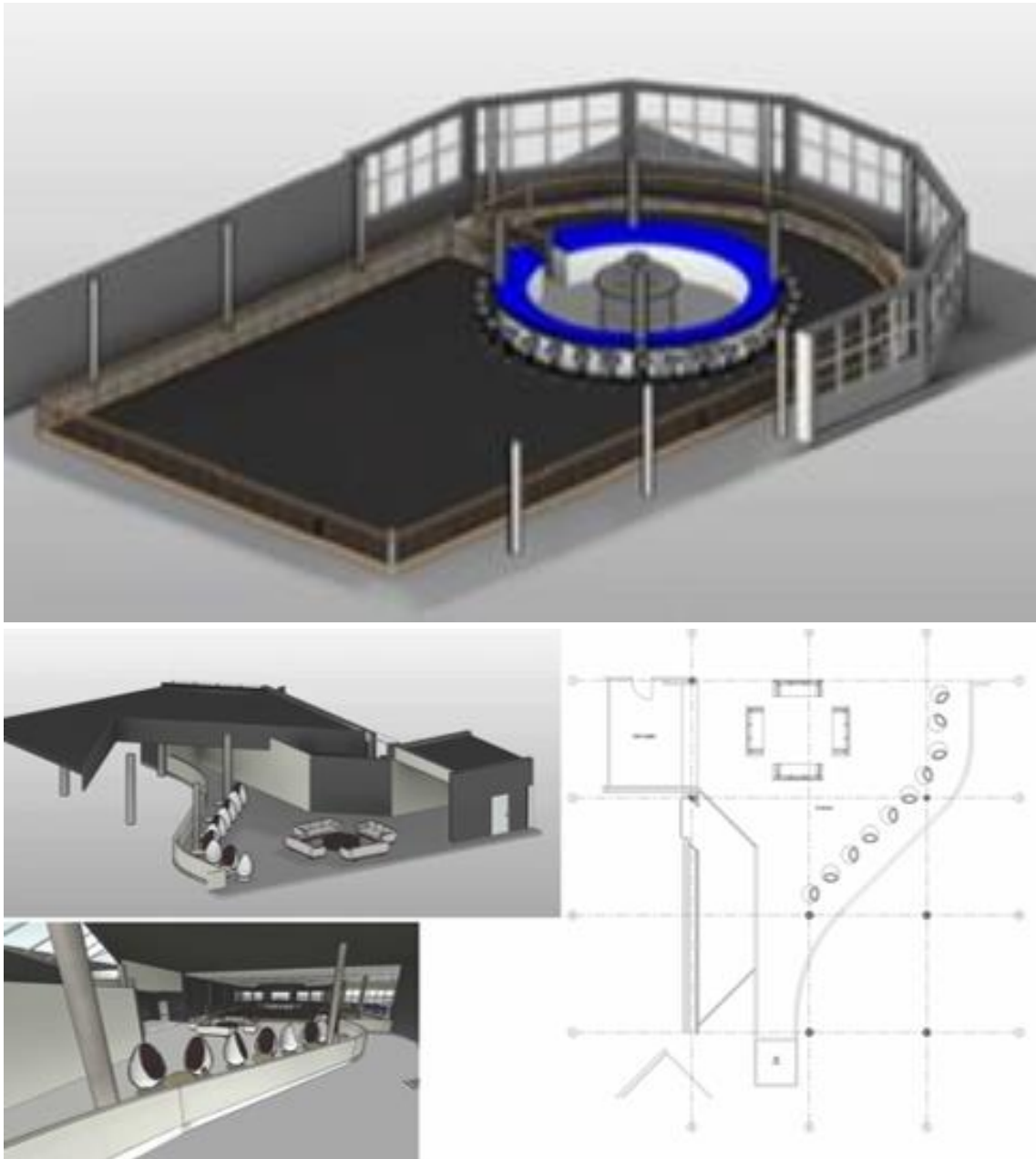


Figure 14. Screenshots from the second presentation of students from Saxion University to Bodø Municipality. And the proposed design of the roller skate track and the mock design of an entrance for people with reduced mobility.

The third group, they conducted a small-scale survey at Nord University and CityNord (the local mall) where the results showed that the main focus should be on children, therefore their suggestions were linked to a playground with Butterflies and nature, a kart-track, and a climbing wall using the ground land first level of the airport. They did

an analysis of circularity for different materials of the airport based on the R-ladder of circularity.

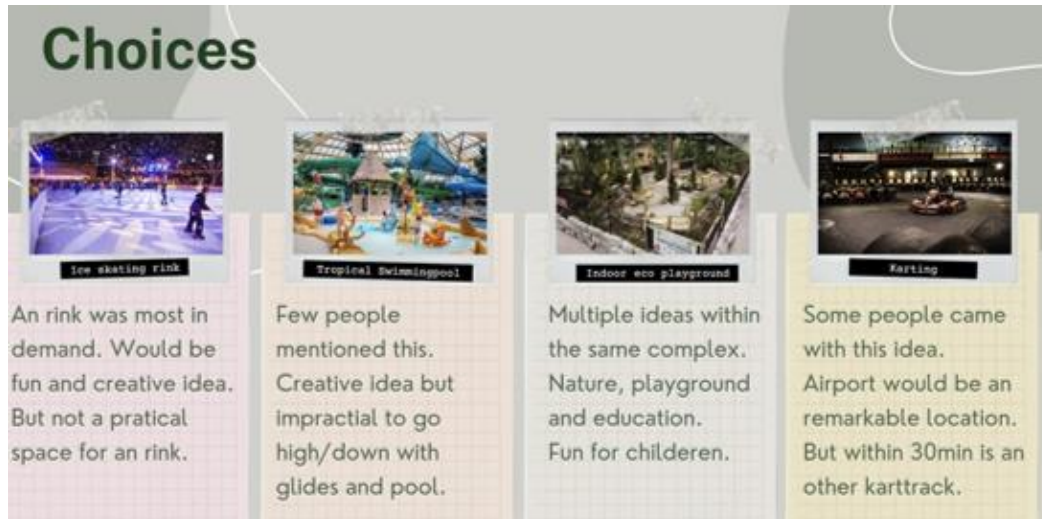


Figure 15. Screenshot from the third presentation of students from Saxion University to Bodø Municipality. Showing the results that they obtained from the survey to local population.



Figure 16. Screenshot from the third presentation of students from Saxion University to Bodø Municipality. Showing the sketch designs of the butterfly garden and the climbing wall.

The fourth group had a wider focus on different ages of population from Bodø distributed in different sections of the airport, and the design of for example a theatre

re-purposing the structures around the airport, as well as the airport's current chairs. A restaurant with live cooking concept for guests, to reuse baggage carrousel as wall covering, to reuse the boarding gates as entrances for the restaurant experience, among others.



Figure 17. Screenshot from the fourth presentation of students from Saxion University to Bodø Municipality. Showing the sketch designs of the restaurant concept.

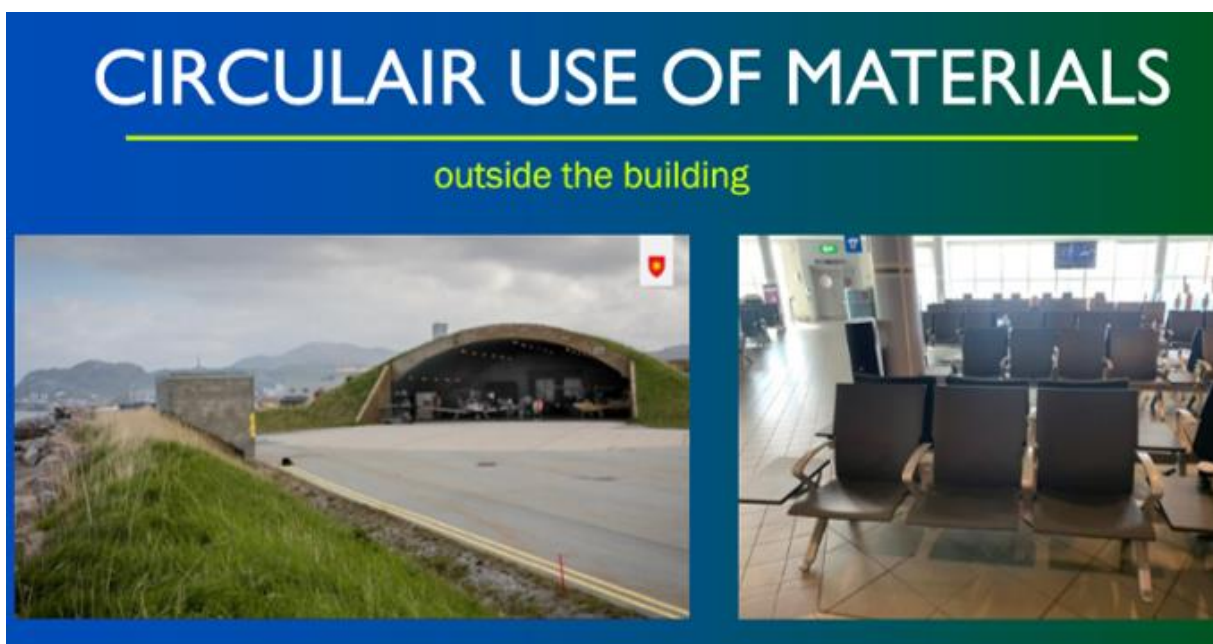


Figure 18. Screenshot from the fourth presentation of students from Saxion University to Bodø Municipality. Showing the potential repurpose of a structure as a theatre with reused chairs.



Figure 19. Screenshot from the fourth presentation of students from Saxion University to Bodø Municipality. Showing the potential repurpose of structures inside the airport for the restaurant concept.

Conclusions

There are many benefits resulting from collaboration and stakeholder engagement, including the ability to divide and conquer work, the incorporation of different people's knowledge, perspectives, and experiences into the solution process, and the stimulation of one another's creativity and productivity. Stakeholder involvement activities is swiftly replicable, and manhours are often the biggest resource needed to execute them.

It is imperative for prosperous organizations to maintain a constant awareness of individuals who possess the potential to boost the organization forward, as well as those who may impede its progress. Developing and enhancing stakeholder relationships can prove to be a highly successful strategy for expediting short-term decision-making and accomplishing long-term objectives. It has been rewarding to work with many actors involved in CDW; from academics, students, colleagues, children, citizens, experts, companies, etc. and it is highly recommended to reach others to develop solutions and increase co-creation.

CITYLOOPS

CityLoops is an EU-funded project focusing on construction and demolition waste (CDW), including soil, and bio-waste, where seven European cities are piloting solutions to be more circular.

Høje-Taastrup and Roskilde (Denmark), Mikkelí (Finland), Apeldoorn (the Netherlands), Bodø (Norway), Porto (Portugal) and Seville (Spain) are the seven cities implementing a series of demonstration actions on CDW and soil, and bio-waste, and developing and testing over 30 new tools and processes.

Alongside these, a sector-wide circularity assessment and an urban circularity assessment are to be carried out in each of the cities. The former, to optimise the demonstration activities, whereas the latter to enable cities to effectively integrate circularity into planning and decision making. Another two key aspects of CityLoops are stakeholder engagement and circular procurement.

CityLoops started in October 2019 and will run until September 2023.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 821033.

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