Peter Andreas Sattrup
Architect MAA PhD Senior Adviser – Sustainability

ARCHITECTURE CREATES VALUE

Danish experiences and future trajectories

DANISH
ASSOCIATION OF
ARCHITECTURAL FIRMS

UN 17 SDGs - UIA 2023 Copenhagen

DANSKE ARKITEKT VIRKSOMHEDER

UIA 2023 COPENHAGEN

Peter Andreas Sattrup Architect MAA PhD Senior Adviser

Architectural design

”When the architect wants grass on the roof…

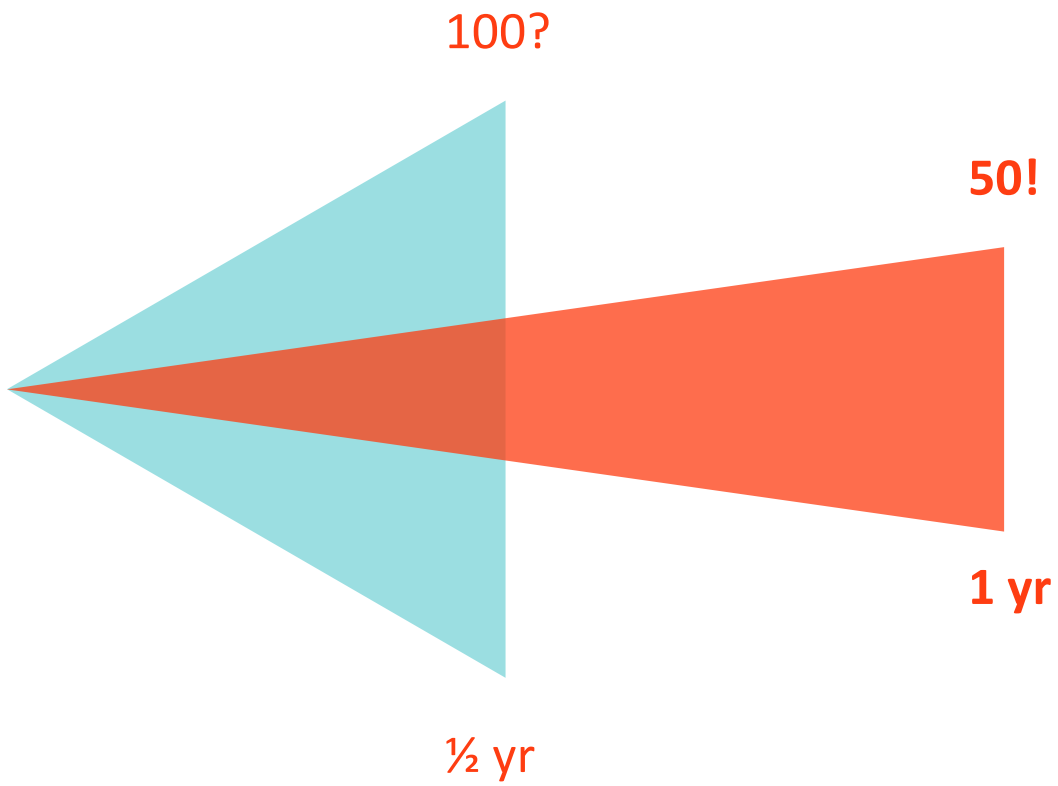
…who has the ‘can-it-be-sold-hat’on?”

EDC Real estate 2015

What is it worth?

Peter Andreas Sattrup Architect MAA PhD Senior Adviser

75+ BUILT PROJECTS - good documentation & clear value creation



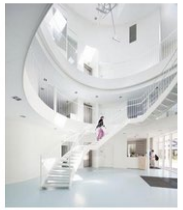
Nanna Rose Broch & Peter Andreas Sattrup

Architecture creates value: 75+ Danish cases

25.10.16 #CASE
DANMARKSHUSENE
Danmarkshusene i Rødovre er en ny generation almene boliger, der er billige, bæredygtige og attraktive.

17.10.16 #CASE
FØDEVAREBYGNINGEN KU SCIENCE
I den CO2-neutrale Fødevarebygning på KU Science opleves styrket kommunikation og arbejdsglæde.

21.09.16 #CASE
WALK & TALK CIRCLES
Danmarks første "Walk & Talk"-landskab rykker møde- og læringsaktiviteter ud i naturen.



21.09.16 #CASE
GREEN LIGHTHOUSE
Green Lighthouse er blevet et udstillingsvindue for fremtidens bæredygtige offentlige byggeri.

16.06.17 #CASE
GYLDENRISPARKEN
Helhedsrenovering øger trygheden, mindsker kriminaliteten og styrker beboerfællesskabet i Gyldenrisparken.

23.03.17 #CASE
RØSNÆS RUNDT
Rosnæs' natur er blevet tilgængelig med nye muligheder for aktiviteter og oplevelser til vands og til lands.

22.02.17 #CASE
SEB DOMICILET
SEB domicilets placering og markante arkitektur styrker SEB Bank's brand, forretning og interne processer.

06.02.17 #CASE
FREMTIDENS BØRNEHJEM
På børnehjemmet Villaen er arkitekturen med til at mindske konflikter og skabe større tryghed.

21.09.16 #CASE
SOLHUSET
Solhuset i Horsholm er en børnehaveinstitution, som sætter fokus på lys, klima og trivsel.

21.09.16 #CASE
KMC NORDHAVN
KMC Nordhavn er det første DGNB-certificerede kontor- og erhvervsbyggeri i Danmark.

21.09.16 #CASE
HASLE HAVNEBAD
I Hasle oplever borgerne, at deres nye havnebad har givet byen en ny attraktion og identitet

21.09.16 #CASE
MULTIHALLEN I SDR. NISSUM
Ombygning styrker lokalt sammenhold, borgernes stolthed og integrationen af turismen i lokalsamfundet.

30.01.17 #CASE
VANDHALLA EGMONT HØJSKOLEN
Inkluderende svømmehal skaber lokal stolthed, forbedrer sundheden og øger glæden ved bevægelse.

24.01.17 #CASE
MUSHOLM FERIECENTER
Sports- og feriecenteret Musholm viser vejen frem for tilgængelig arkitektur.

10.01.17 #CASE
GREEN SOLUTION HOUSE
Eksperimentarium for grønne ideer bygger bro mellem dansk turisme og industri.

30.11.16 #CASE
DANSKE HANDICAPORGANISATIONERS HUS
Øget arbejdsglæde, engagement og stolthed. Styrket vidensdeling, samarbejde og konflikthåndtering.

18.09.16 #CASE
DTU SKYLAB
Populært mødested giver mere innovation og entreprenørskab med 6000 besøgende om måneden.

18.09.16 #CASE
AALBORG HAVNEBAD
Samlingssted for badning, afslapning og socialt samvær skaber øget liv ved havnefronten i Aalborg.

18.09.16 #CASE
PLUG N PLAY
PLUG N PLAY skaber mere byliv i Ørestad Syd.

18.09.16 #CASE
RYESGADE 30 A-C
Bæredygtig byfortætning og energieffektivisering af ejendom på Ryesgade 30 i København.

18.09.16 #CASE
LINDEVANGSPARKEN & SLØJFEN
Rekreativt område anvendt til afvikling af kraftige regnhændelser, rekreative formål, undervisning og optræden

18.09.16 #CASE
SØNÆS
Rekreativt byrum skaber øget markedsføringsværdi, mindskede oversvømmelsesomkostninger og øget boliginteresse.

17.09.16 #CASE
ALLERHUSET
Nye rammer inspirerer til udadvendte events, styrker virksomhedens image og kommunikation med omverdenen.

17.09.16 #CASE
FREDENSBORG SKOLE VILHELMSRO
Fredensborg Skole Vilhelmsro er et stærkt forbillede for fremtidens klimatilpassede skolebyggerier.

18.09.16 #CASE
UPCYCLE HOUSE
Nyt enfamiliehus reducerer klimapåvirkning med 86%. Kodeordet er UPCYCLING

18.09.16 #CASE
BRICK HOUSE
MiniCO2-huset 'Brick House' har en levetid på minimum 150 år og en

17.09.16 #CASE

17.09.16 #CASE
SØNDER BOULEVARD

17.09.16 #CASE
ENGHAVE MINIPARK

17.09.16 #CASE
AKTIVITETSAREALER VED ANGORAEN
Nye bykvaliteter er med til at styrke Høje Kolstrupa lokale fællesskab og byens ry i Aabenraa Kommune.

Productivity and learning
Urban Life
Health
Resources
Social Cohesion
Climate
Constructability
Economy

CASE: Moesgaard – Henning Larsen Architects

Photo by Jens Markus Lindhe

CASE: Moesgaard – Henning Larsen Architects

DANSKE ARKITEKT VIRKSOMHEDER

Photo by Jens Markus Lindhe

Peter Andreas Sattrup Architect MAA PhD Senior Adviser

DANSKE ARKITEKT VIRKSOMHEDER

Meaning

Measurement

Peter Andreas Sattrup Architect MAA PhD Senior Adviser

CASE: Esbjerg Psykiatri – Arkitema

DANSKE ARKITEKT VIRKSOMHEDER

Photo by Arkitema

Peter Andreas Sattrup Architect MAA PhD Senior Adviser

CASE: Aabenraa Psykiatri – White Arkitekter

Work accidents reduced 30%

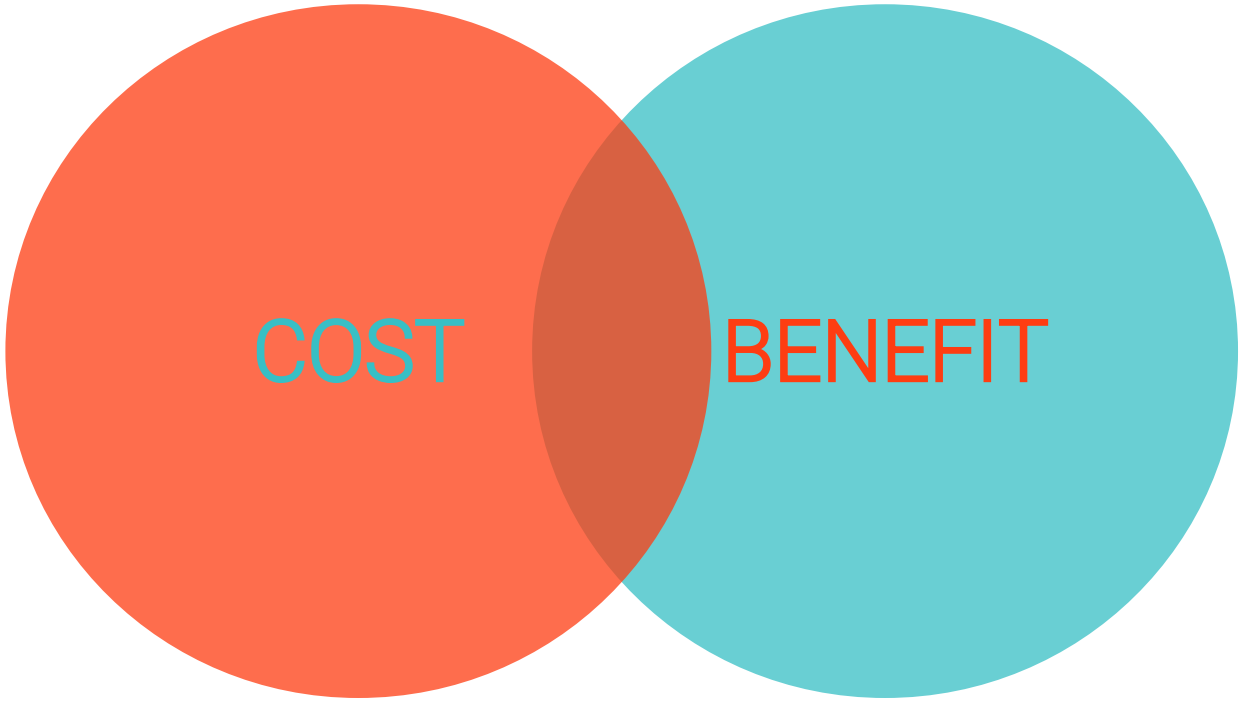
Forced fixation reduced 27%

Photos by Adam Mørk

Peter Andreas Sattrup Architect MAA PhD Senior Adviser

Value creation

Environmental
Social
Economic



Economic
Social
Environmental

Resource management

Peter Andreas Sattrup Architect MAA PhD Senior Adviser

CASE: Jaegers sports facility – Vandkunsten

DANSKE ARKITEKT VIRKSOMHEDER

Peter Andreas Sattrup Architect MAA PhD Senior Adviser

CASE: Ryesgade 30 – Krydsrum arkitekter

DANSKE ARKITEKT VIRKSOMHEDER

3 GOOD HEALTH AND WELL-BEING
7 AFFORDABLE AND CLEAN ENERGY
11 SUSTAINABLE CITIES AND COMMUNITIES
13 CLIMATE ACTION

56% energy savings

Financed by communal rooftop terraces

And attractive attic apartments

Peter Andreas Sattrup Architect MAA PhD Senior Adviser

CASE: Sønder Boulevard – SLA

Park 'paid back' in 1½ years

Photo by Mads Klitten

Peter Andreas Sattrup Architect MAA PhD Senior Adviser

CASE: Rambøll Hq – Mikkelsen arkitekter

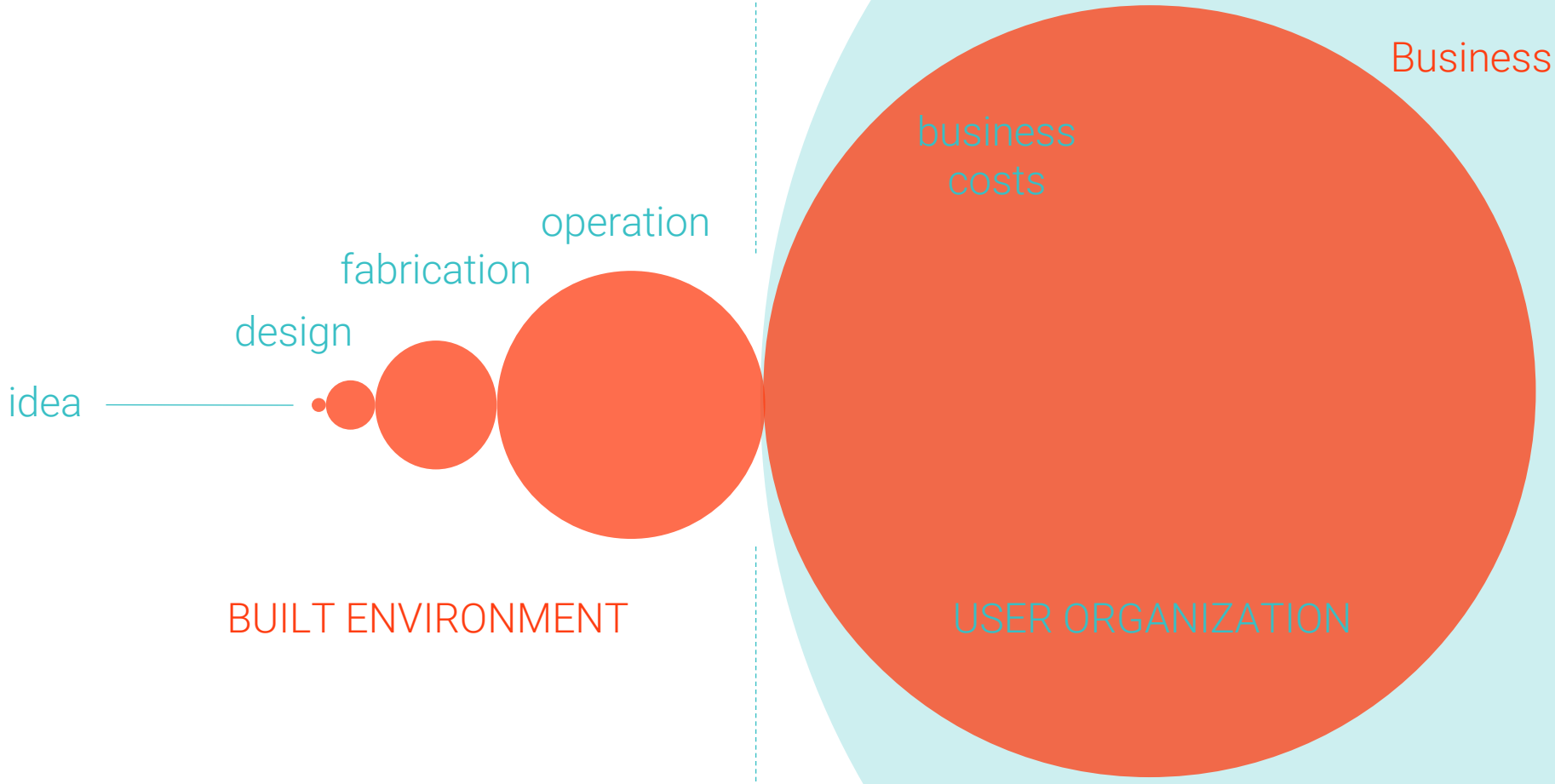
DANSKE ARKITEKT VIRKSOMHEDER

3 GOOD HEALTH AND WELL-BEING
7 AFFORDABLE AND CLEAN ENERGY
11 SUSTAINABLE CITIES AND COMMUNITIES
13 CLIMATE ACTION

"There's focus on sustainability and reduced energy use – but also on the daily operation and how the building stimulates collaboration across departments and disciplines"

– Lars Ostenfeld Riemann, Client

Value



Cost

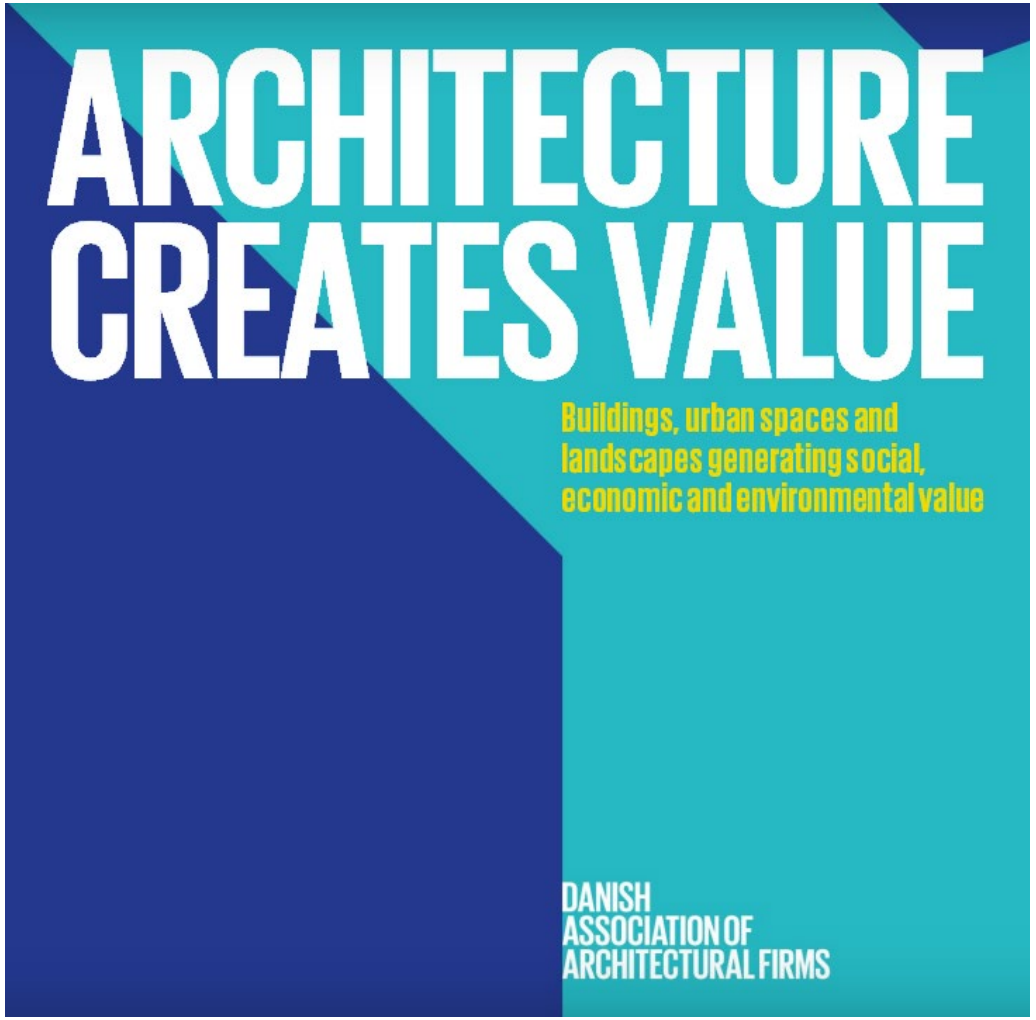
Graphics inspired by Henrik Bang 2016

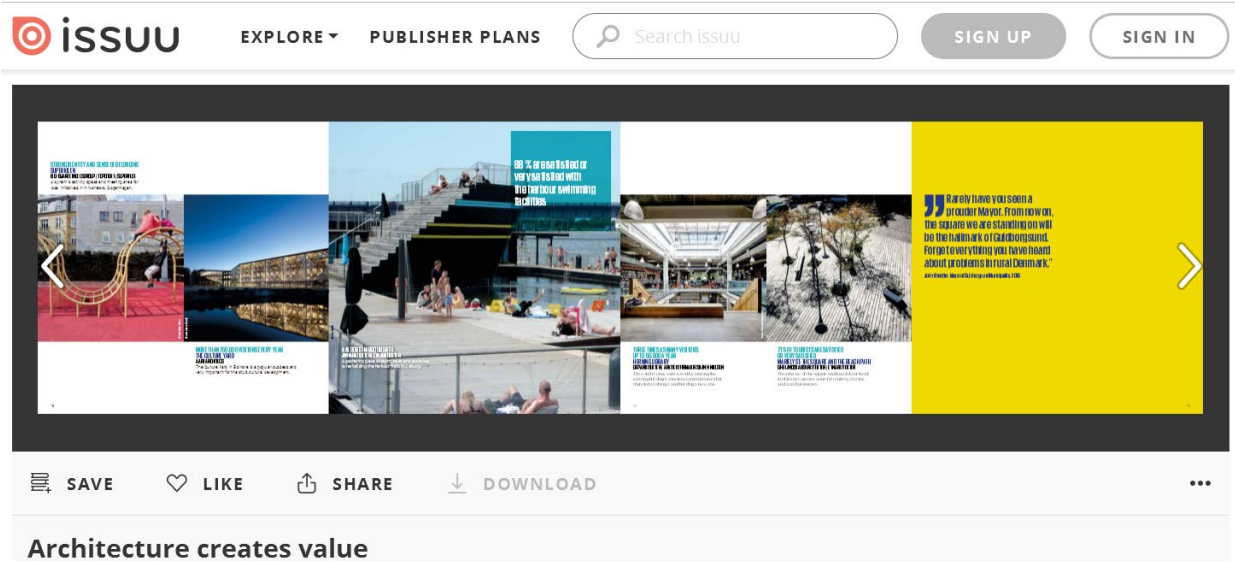
Peter Andreas Sattrup Architect MAA PhD Senior Adviser

CASE: VUC Haderslev – AART architects

Photo by Jens Markus Lindhe

Peter Andreas Sattrup Architect MAA PhD Senior Adviser





More cases and background info:

www.danskeark.dk

Peter Andreas Sattrup Architect MAA PhD Senior Adviser

Documenting value creation by architectural design

DANSKE ARKITEKT VIRKSOMHEDER

- Fascination and credibility: Identifying and documenting the compelling stories
- Learning and experience: understanding why and how design works IRL
- Relevance and trust: Documenting the scale of impacts and consequences
- Strategic relations: Opens a long term collaboration with clients and users

Documenting value is crucial in order to qualify smarter investments in design quality

What is it worth?

Peter Andreas Sattrup Architect MAA PhD Senior Adviser

Nordic & European collaboration

DANSKE ARKITEKT VIRKSOMHEDER

HOLMEN MARITIME: ARBEIDSGLEDE

→ Mer arbeidsglede, mindre logistikkutfordringer

→ Anlegget tiltrekker seg arbeidskraft til fiskeri- og sjømatnæringen

→ Startskudd for et industriområde i utvikling

– Det var et tiltak for å gjøre noe som var effektivt på alle mulige områder. Det jeg opplevde var at det var en arbeidsstolthet og det å ha en fin arbeidsplass å tilhøre.

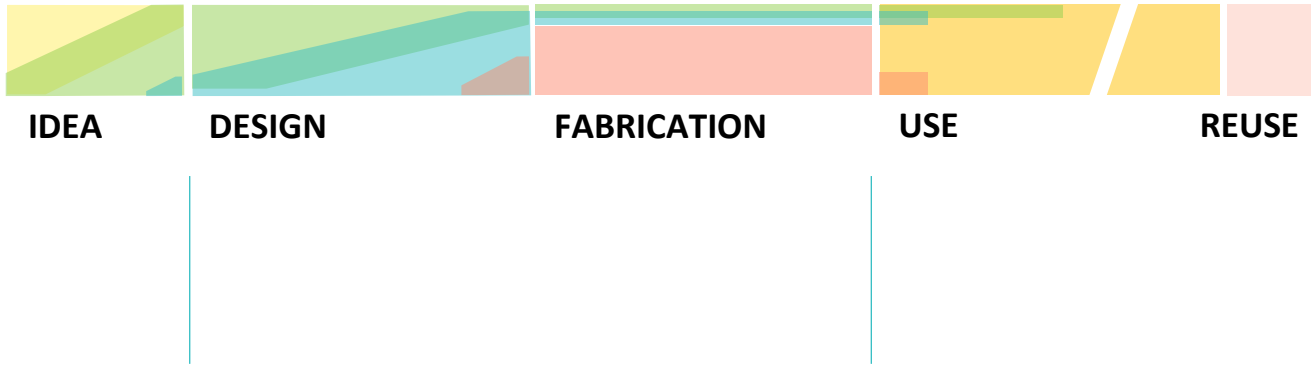
- Knut Roald Holmøy, Holmøy Maritime AS

ARCHITECTS' COUNCIL OF EUROPE
CONSEIL DES ARCHITECTES D'EUROPE

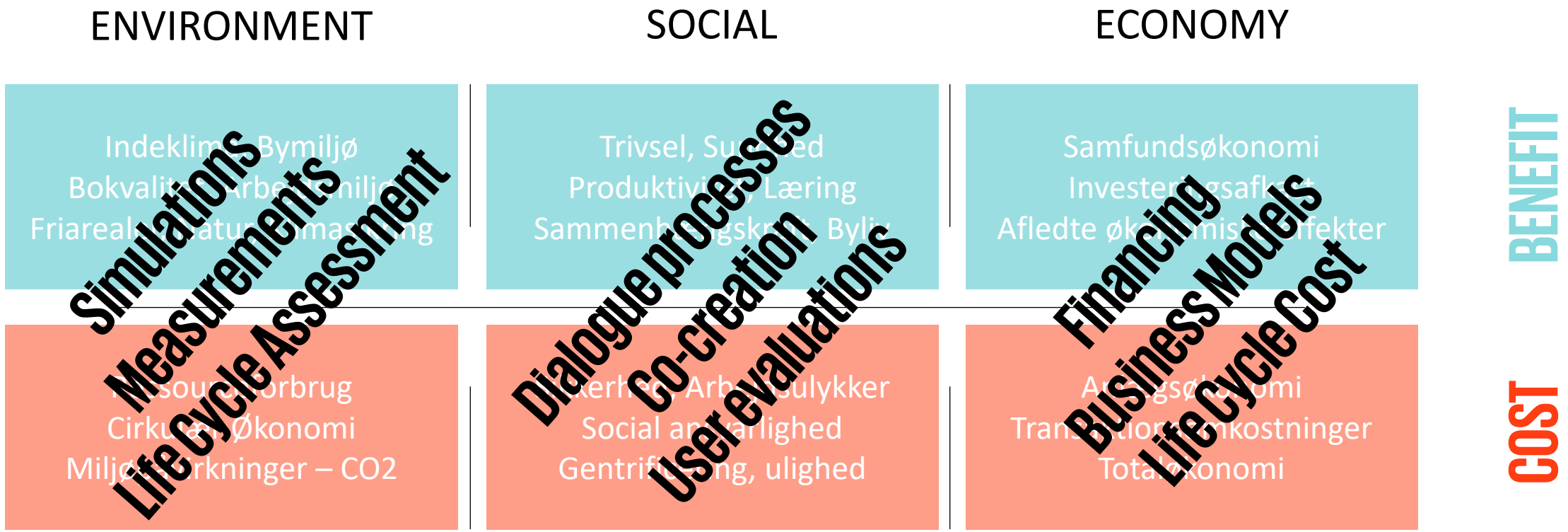
www.arkitekturskaperverdi.no

Peter Andreas Sattrup Architect MAA PhD Senior Adviser

PERSPECTIVES: TOOLS and METHODS



PERSPECTIVES: TOOLS and METHODS



DANSKE ARKITEKT VIRKSOMHEDER

Peter Andreas Sattrup Architect MAA PhD Senior Adviser

DANSKE ARKITEKT VIRKSOMHEDER

METHOD: TOTAL VALUE

Turn social and environmental effects into financial values. Use total value to describe the financial gains achieved by virtue of the construction work and the activities supported by the architecture. View them in relation to the overall financial costs, and describe how gains and costs are distributed among the stakeholders affected by the project.

The greatest expenses associated with a building are frequently not the construction price or operating costs, but the expenses of the activities for which the building forms a framework. For example, employees' payroll expenses are many times greater than the cost of renting an office property. But that said, the activities are what create the gains. With total value, we take the most significant social, environmental and financial advantages and disadvantages over which a building has an influence and turn them into costs.

If users are happier within a new framework, this may be of major financial value. It may result in better work performance, better learning or higher productivity, for example. It may also result in fewer sick days, thereby reducing costs. Even marginal gains in terms of productivity or health may be very valuable for a user organisation over time.

Architecture is often of major significance when it comes to the amount of interest generated by a building. A strong architectonic identity can be used as branding, which may be of major financial significance. For example, you could consider turning the value of increased numbers of visitors into a financial value, or assessing the media value of what people say about the building in the press and on social media.

Use total value to highlight the overall 'business model' for the building for the various stakeholder groups: developers, users, communities. In the present value, turn as many social advantages and disadvantages as possible over the lifetime of the building into financial values.

60

PLAN	DESIGN	USE
Define assignment Define success criteria Establish baseline	Define resources Assess effects Document qualities	Evaluate quality Measure effect Document value
Use total value to evaluate and highlight gains for users and the community when the building is put into use. If the gains are sufficiently significant, they can be used as an argument in favour of investing in better quality in the building or more facilities to reinforce activities involving users or the local community, if developers can sell on the gains by charging more rent or accommodating more users in the building.	You can make your initial total value-related assessment more precise by including overall financing based on the material and component selections that you decide on with the developer. You can also estimate the finances for the project's functional facilities and environmental amenity values.	When the project is put into use, you can assess its overall financial value creation for developers, users and communities based on usage statistics, empirical data and financial indicators. Use qualitative descriptions of indicators that cannot be turned into financial figures.

METHOD: INTERVIEWS

Who perceives what and why?

Use interviews to define value concepts for your project's stakeholders. Interviews provide an insight into social and cultural phenomena by asking what interviewees think of the world and finding out what they think, feel and do in various contexts. Interviews provide an opportunity to uncover tacit intelligence, obtain expert knowledge and qualify the interpretation of the spatial and social patterns that are discussed or observed.

Combine interviews with observations, questionnaires and discussions in workshops or focus groups in order to harvest insight into stakeholders' values and the influence of the design solutions on their behaviour. Plan your interviews so that your interviewees are representative of the issues and interests to be addressed by your project, and justify any omissions. Create a question framework. Define a series of questions that are the same for the stakeholders, and supplement these with questions that address the issues facing individual stakeholders, or their interests. Give stakeholders themselves the opportunity to define questions or issues that you have not foreseen. Gather together your interviews in a collective interpretation framework. What topics crop up in the various interviews? Can they be synthesised to form more general statements?

PLAN	DESIGN	USE
Define assignment Define success criteria Establish baseline	Define resources Assess effects Document qualities	Evaluate quality Measure effect Document value
Interviews are essential when it comes to establishing a stakeholder analysis with a broad base at the start of a project. Define which stakeholders are important to interview, and ask which values are key to their involvement in the project, and how they can be expressed as needs and impact targets in the project.	As the project's resources and solutions are defined, supplementary interviews and discussions with stakeholders may help to qualify decisions so as to ensure that the solutions create as much value as possible for stakeholders.	When the project is evaluated, use interviews to examine and document how people perceive the design solutions and assign value to them. Interviews are therefore essential when interpreting and explaining the project's effects.

METHOD: WELL-BEING AND HEALTH

Use evidence-based design principles to design buildings that support social behaviour, well-being and health for all.

Increasing amounts of research are being carried out into how design can underpin well-being and health, and literature, guidelines and instructions are available that can be used to qualify design and process solutions. Staying abreast of the latest information in the field provides the best possible starting point for ensuring that the solutions have the intended effect.

Well-being and health are largely related to how spatial conditions facilitate behaviour and activities and offer users opportunities. Make sure that these opportunities are available to all by using universal design. Arrangements that promote health and well-being are frequently very much dependent on behaviour, and solutions have to be formulated so that they fit in with the social and cultural context in order to have the best possible effect. Therefore, use discussions with stakeholders in your efforts to adapt evidence-based design principles to the specific challenges of the assignment.

Also be aware that material attributes and production processes may be linked with effects on health and well-being. Use instructions, certifications, checklists and environmental product declarations to avoid unwanted chemicals and production processes that may subject tradesmen working on the job to a poor work environment and may pose a risk to users.

Evaluate and measure the environmental qualities of the building and its effects on well-being and health when it is put into use. Use the results to improve design principles and solutions for future projects.

PLAN	DESIGN	USE
Define assignment Define success criteria Establish baseline	Define resources Assess effects Document qualities	Evaluate quality Measure effect Document value
Find research literature on health and well-being for the field for which you will be designing a solution. Examine whether design guidelines, checklists or other evidence-based recommendations have been published that may support the design process and be used to formulate objectives for well-being and health-related effects. Work with stakeholders to find out what specific requirements they have in terms of special organisation, material selection and processes to promote health and well-being at the finished building, as well as at the construction site. Plan in such a way that safeguards the work environment during construction and operation, and, in time, demolition of the building.	Use search, guidelines and checklists to support design options so that they are based on state-of-the-art intelligence in the field. Qualify design decisions in discussion with user groups and other relevant stakeholders. Use universal design in order to guarantee equal opportunities and accessibility for all. Check that the solutions implemented are of the same quality as the solutions prescribed. Implementation and deliveries of materials are of major significance to the environmental qualities of the building. Design a good work environment for the contractors that will be constructing the building. Make sure your tradesmen get home safely.	Use evaluations and measurements of the building's environmental qualities to create new evidence-based design principles or improve the existing ones. Health and well-being effects focusing on behaviour can be documented by means of observation studies, usage data, work environment assessment statistics, etc. The health effects of materials can be documented by means of material data, environmental product declarations and certifications, for example.

CASE: 3XN ARCHITECTS, MIDDELFART SPAREKASSE

Location	MIDDELFART
Type	OFFICES AND PUBLIC AREA
Completed in	2010
Size	5000M2
Budget	DKK 60 MILLION
Architects	3XN
Landscape	SCHØNHERR
Developer	TREKANTENS EJENDOMSSELSKAB A/S
Contractors	KINGO KARLSEN A/S, JORTON A/S, GULDFELDT A/S
Engineers	COWI
Artistic decoration	OLAFUR ELIASSON

PLAN	DESIGN	USE
Define assignment Define success criteria Establish baseline	Define resources Assess effects Document qualities	Evaluate quality Measure effect Document value
The purpose of this project was to enhance employee motivation, job satisfaction and well-being by creating an adventurous work environment that supported cooperation and informal knowledge sharing. It was important for the building to become an integral part of urban life as the local community was made up of customers of the bank.	3XN worked with evidence-based principles for the work environment and good indoor climate: views and access to nature, varying light conditions with lots of daylight and minimal dazzle, a building design that encouraged movement and informal meetings, clear orientation around the building and zoning that permitted both concentrated working and social interaction. The building's transparent roof structure links the centre of the town with Lillebælt and is a public space during daytime hours.	3XN carried out an evaluation of the building in partnership with RUC, which showed that 80% of staff were happier with the new building than with the previous premises, and 93% felt that they worked efficiently in the building. Middelfart Sparekasse has been named the Best Workplace in Denmark on a number of occasions, most recently in 2016. The company is also on the list of the best places to work in Europe.

Photo: Adam Mørk

METHOD: ENVIRONMENTAL QUALITIES

Performance simulation and measurements – Optimise your design's environmental qualities. Use simulation tools and measurement of environmental qualities to qualify your project's environmental qualitiesas experiential potential, and optimise its technical capacity from a sustainability perspective.

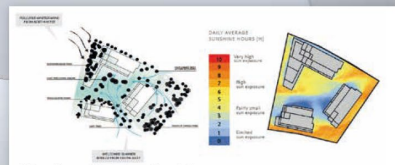
You can simulate the urban environment and climate qualities such as sunshine, light, sound, air and temperature both indoors and out. Climate (the indoor climate) has a well-documented effect on human well-being, with effects on productivity and learning, and is hence an important social and financial driver in respect of planning and architecture. Energy consumption for building operation largely relates to regulation of the indoor climate and is closely linked with the design of buildings and the materials selected for them, and the behaviour of users. Therefore, you can use simulations to enhance the sensory qualities of the design while also reducing the need for additional energy.

Environmental quality is one of the most important aims of construction and is absolutely crucial to human physiological needs, health and well-being. Therefore, expertise in the assessment of both technical and experience-related aspects is important in the design process. Use simulation tools and measurements to estimate the relative effect of the individual design resources and how they interact. Examine design variants and combine the best solutions. Repeat and systematise your results in order to optimise your learning and knowledge.

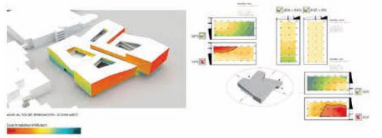
PLAN	DESIGN	USE
Define assignment Define success criteria Establish baseline	Define resources Assess effects Document qualities	Evaluate quality Measure effect Document value
Measurements and simulation tools can be used initially in order to map the climatic and environmental qualities of a location (or lack thereof) as a basis for a discussion on what qualities the project is to promote and how these can be expressed in terms of environmental objectives for the project.	While the project is being designed, simulations can be used to assess the environmental qualities of the design resources on a rolling basis, thereby using them as creative input in the design process and also as a way of qualifying decisions with stakeholders.	When the project is implemented, it should be followed up with environmental measurements on site and in discussion with users. Are environmental qualities and energy consumption as anticipated, or does the model, technology or behaviour need to be adjusted? How is the quality of the environment perceived, and how does it influence users' well-being? The technical environmental performance of buildings is very rarely as calculated when they are put into use. Follow-ups with emphasis on the interaction between behaviour, technology and comfort may assist developers, operators and users in the improvement of building performance.

CASE: HENNING LARSEN ARCHITECTS, DESIGN MED VIDEN

PLAN	DESIGN	USE
Define assignment Define success criteria Establish baseline	Define resources Assess effects Document qualities	Evaluate quality Measure effect Document value
The environmental qualities and challenges are recorded and measured on site. Environmental targets are formulated in relation to the challenges and potential on site, and the programme and nature of the assignment.	The project's design processes the environmental challenges and potential from urban scale to detail. Simulations of local climate conditions, indoor climate, comfort and energy consumption ensure that design decisions at all levels help to create environmental qualities in the building while reducing resource consumption.	Simulations are followed up with environmental measurements in the implemented building and can ideally be supplemented with evaluations of operating data. Following up on the environmental and technical performance of projects may document how aesthetics and functionality are interlinked and reinforce the credibility of the advice going forward.



Urban climate · The Springs, Shanghai



Energy and daylight · University of Cincinatti

Daylight · Nordea Bank, Ørestad

Photo: Adam Mørk

METHOD: LIFE CYCLE ASSESSMENT

Keep track of the environmental impact of your project. You can use life cycle assessments to document whether your construction work is climate-neutral, for example.

Life cycle assessment (LCA) is a method for quantifying and assessing the environmental impact of the production and use of buildings and structural elements throughout their entire lifetime. LCAs can be used, for example, to define targets for how to minimise your project's carbon footprint if you work with material selection, reuse and recycling. When working with LCAs, you have to calculate all materials in the structural elements that you are assessing and use material data to calculate the environmental impact of production, transportation, use, maintenance, replacement and disposal. In Denmark, the LCAbyg tool is free to use but it is possible to create faster calculations if you use BIM models as a starting point for your volume calculations.

Be alert to make sure that your solutions do not shift the burden from one environmental impact to another. For instance, make sure that your climate optimisation does not result in loss of biodiversity. Manual data entry is one of the typical sources of error. This is why it is a good idea to develop a digital, BIM-based workflow that can automate collection of material data and visualise the analyses with a minimum of effort.

The LCAbyg tool can be accessed at www.lcabyg.dk

PLAN	DESIGN	USE
Define assignment Define success criteria Establish baseline	Define resources Assess effects Document qualities	Evaluate quality Measure effect Document value
Initially, define a purpose and an objective for the project's environmental impact – state, for example, that the building must be climate-neutral throughout its lifetime. Or else you can use a predefined objective from a certification system such as DGNB. Create an initial experience-based assessment of what energy measures, material choices, recycling strategies, etc. will bring you closer to your target.	As the project is designed, you can qualify your material selections from an environmental perspective; by calculating environmental profiles for components and comparing embedded energy with durability, for example. These calculations will give you the opportunity to minimise the project's overall environmental burden.	The built project will form the basis for a final LCA calculation of the project's environmental impact that can be used for sustainability certification, for example.

CASE: 3XN, LENDAGER GROUP, VANDKUNSTEN, CIRCLE HOUSE

Location	LISBJERG, AARHUS
Completed in	2020
Developer	LEJERBO, MUNICIPALITY OF AARHUS
Architects	LENDAGER GROUP, 3XN, VANDKUNSTEN
Engineers	ORBICON
Contractors	MT HØJGAARD
Knowledge partners	DANISH ASSOCIATION FOR RESPONSIBLE CONSTRUCTION (FBSA), DANISH BUILDING RESEARCH INSTITUTE (SBI), GXN INNOVATION, CINARK, AARHUS UNIVERSITY SCHOOL OF ENGINEERING

Photo: 3XN

PLAN	DESIGN	USE
Define assignment Define success criteria Establish baseline	Define resources Assess effects Document qualities	Evaluate quality Measure effect Document value
Circle House was a development project involving players from the entire reduction value chain, developing basic principles for circular construction. The aim was to ensure that 90% of the materials could be recycled without losing appreciable value. These solutions were to be implemented in non-profit housing construction, built under market conditions.	During the development phase, all structural elements underwent a life cycle assessment by SBi. Environmental impact was quantified in relation to lifetime and potential for recycling. Analyses showed potential climate impact savings of 45-65% compared with standard construction. The potential savings were closely interlinked with the architectonic detailing of the building, which was documented in a model, a drawing, prototypes and diagrams.	The solutions were tested at a full-scale demonstration pavilion. The thorough testing of buildability and the well-documented environmental effects were used as a basis for tendering, and the contractor responsible for the finished building has to comply with this.

PRACTICAL EXAMPLE:
SIGNAL ARKITEKTER

SIGNAL Arkitekter work with user data as a basis for their business model: optimising the use of rooms and buildings in ways that benefit users and clients' activities.

Internal value

Since the company opened in 2000, SIGNAL Arkitekter has been using observation studies, interviews and questionnaires to analyse the needs of their clients. SIGNAL Arkitekter's analyses of rooms and behaviour from several hundred projects have been compiled into a database that SIGNAL Arkitekter draws on for use in all its assignments. By obtaining new information regularly and comparing it with existing data, SIGNAL Arkitekter is creating an evidence-based foundation for its design principles and solutions.

Not only is SIGNAL Arkitekter able to draw on its knowledge of clients' specific challenges, it can also relate to implemented solutions from similar project types with well-documented social and financial effects – schools, health buildings or commercial buildings.

External value

Using user involvement throughout the entire advisory process gives users, clients and advisors insight into the specific needs that are to be met by the project. Formulating values and objectives together creates a collective foundation for and understanding of the assignment. Testing design proposals and prototypes through play and practical application, users have the opportunity to make their own mark on the solutions so that they meet their needs as widely as possible. The discussion involved creates a sense of co-ownership in the project and a better understanding of the potential for use when the project is put into use.

Why is it important to document value?
"At SIGNAL, we work with concepts so that we can always explain what we're doing, why we're doing it, who we're doing it with and what the outcome will be. We always describe what the objective is and how we create value in all our processes and interim steps. After all, if we can't explain what we're doing and why, why should our clients buy advice from us?"

What external value is added in the relationship with your developers and partners?
"As far as we're concerned, everything hinges on our clients and users. This is definitely a different way for architects to think. As architects, we've found ourselves in a difficult place because we stood on the moon and spoke a language without communicating with the people who'll be using the rooms. What we're always linking in the SIGNAL model is the fact that users come first, and rooms are in second place."

What internal value does this add to the practice?
"When we turn up at sales meetings, we know our clients before they walk in the door because we have a vast knowledge of various industries thanks to our data. That knowledge gives us solid credibility at sales meetings. Clients can see that they've come to the right place at their very first meeting with us."

Has it strengthened your business?
"If you want to enter the construction food chain, you have to be able to process data. This means you need to introduce a systematic approach to the way in which you enquire about the client, and to your processes at the practice. You have to be clear on how to analyse your data and understand users. It's all about being extremely analytical. User data and user relations are clearly an unused force in our industry."

Gitte Andersen
SIGNAL Group
Head of SIGNAL UK
Global Head of workplace Management & Design
Architect MAA, Construction Economist MDB

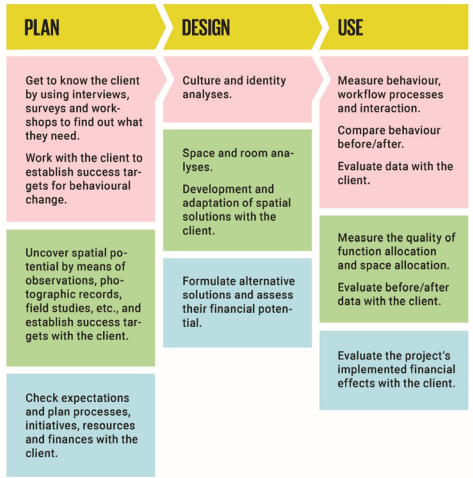
PRACTICAL EXAMPLE:
SIGNAL ARKITEKTER SOCIAL DATA AT THE HEART OF THE BUSINESS

SIGNAL Arkitekter uses data strategic tool. Understanding needs and preferences, defining the assignment to be implemented and specifying the values that you want to create are key.

Value creation based on data

SIGNAL Arkitekter focuses on creating value by means of planning and programming, and uses rooms as tools to improve the performance of companies and organisations. SIGNAL Arkitekter maps how rooms are used, when and by whom so that they can point out untapped potential, create new links and partnerships between users or come up with suggestions for new facilities, with better internal links and optimised use of space.

When the company has worked together with the client to describe the starting point for the assignment – a baseline – and defined its success criteria, it is possible to assess and compare how well the solutions are working throughout the entire process in respect of the social and business-related parameters.



SEB BANK

Location	COPENHAGEN
Completed in	2010
Developer	SEB EJENDOMME
Advisors to developer	EMCON
Architect	LUNDGAARD & TRANBERG ARKITEKTER
Landscape	SLA
Engineers	RAMBØLL
Contractors	E. PIHL & SØN, MJ ERIKSEN, BRØNDUM, LINDPRO
Knowledge partners	FINN REINBOHTE

BRANDING & PUBLICITY ↑
ATTRACTIVE PLACE TO WORK ↑
MOTIVATION & COMMITMENT ↑
RECRUITMENT PROCESS FACILITATED ✓
CUSTOMER ACCESS & NEW ENQUIRIES ↑
ENERGY CONSUMPTION DOWN 20%
BIODIVERSITY ↑
CHILDREN & YOUNG SKATERS USING URBAN SPACE ✓

88

PLAN

SEB wanted to gather all its employees together in order to create synergy effects internally within the group.

The site on which SEB Bank was constructed was configured as an entrance to an urban park in the planning of urban development in the area carried out by the municipality of Copenhagen.

DESIGN

Lundgaard & Tranberg and SLA won the architectural design competition for development of the area. Their proposal included a hilly landscape that merged two meandering office buildings and formed a link to the urban park, which is raised 7 metres above ground level.

The meandering design means that all workstations have a view over the city and the port, and creates a sense of intimacy and clarity.

An atrium in the largest of the buildings creates a visual link between floors.

The landscape between the buildings guarantees accessibility and directs pedestrians to the urban park.

SLA introduced biodiversity and climate adaptation solutions to its design that went beyond the requirements defined for the area by the municipality of Copenhagen.

USE

SEB uses the building as a visual feature just as much as it uses its logo.

The landscape between the buildings is a popular meeting place for young skaters.

The climate solutions provided a role model and a point of reference for the municipality of Copenhagen's subsequent climate protection initiative.

The buildings won several awards and received more than 500 positive mentions in the press in the first year.

The readily recognisable architecture creates financial value due to increased awareness and branding of SEB.

SEB's letting of offices is improved, and an increase in customer enquiries has been recorded.

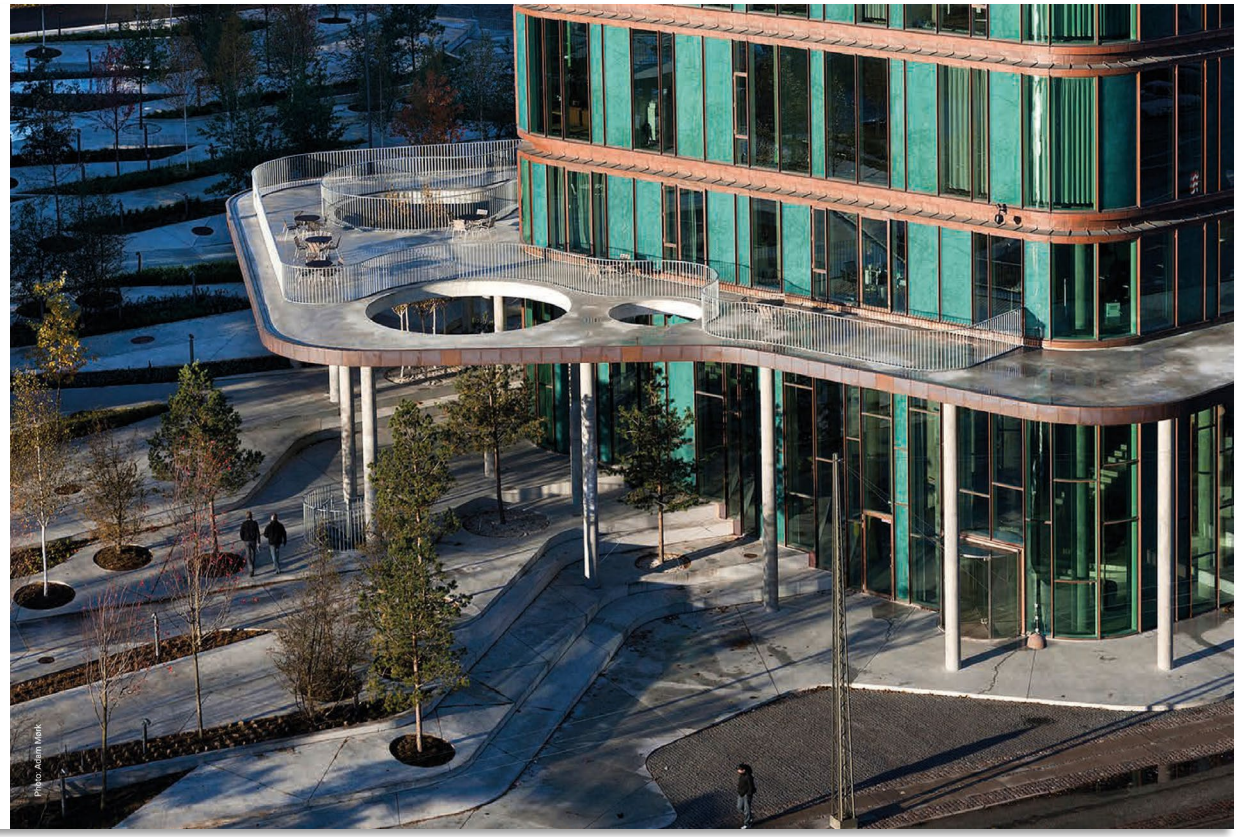
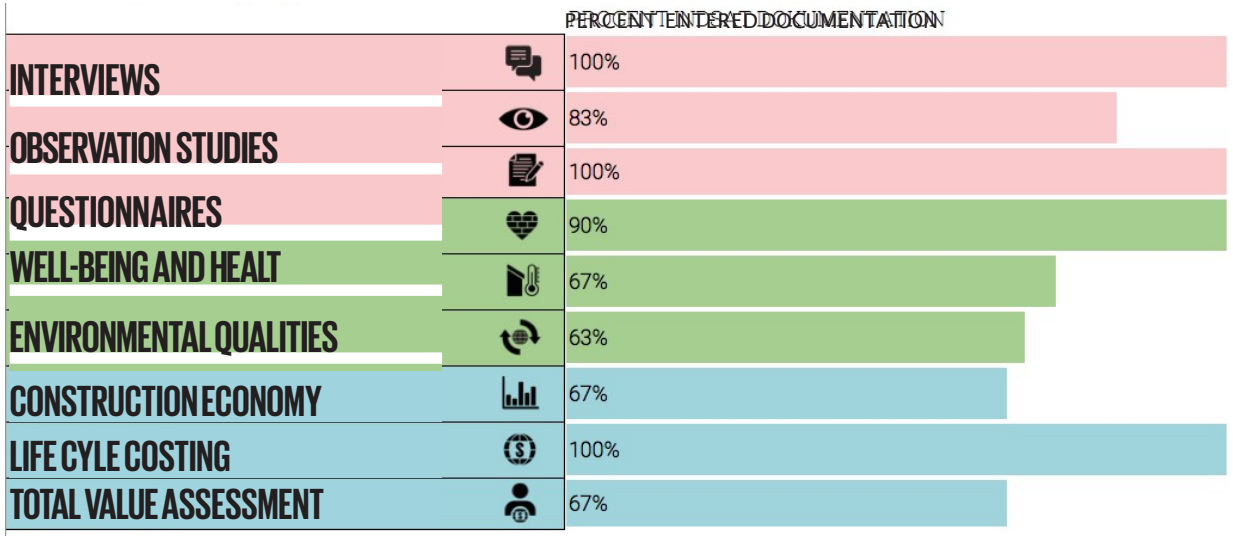


Photo: Adam Mørk

SUMMARY

Methodical review.



When all the questions in the 9 tabs have been through, the studio has hopefully found many aspects of which the project creates value. And now they are even documented!

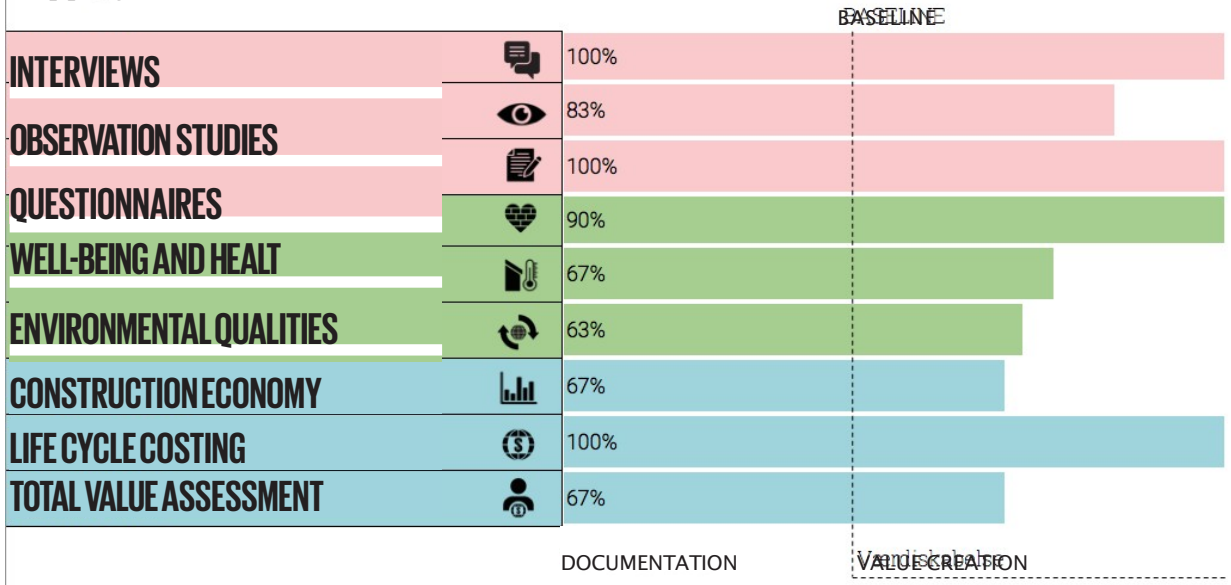
The chart here can help to visualize in which categories the data mainly exists - and where further efforts can be made to recover even more.

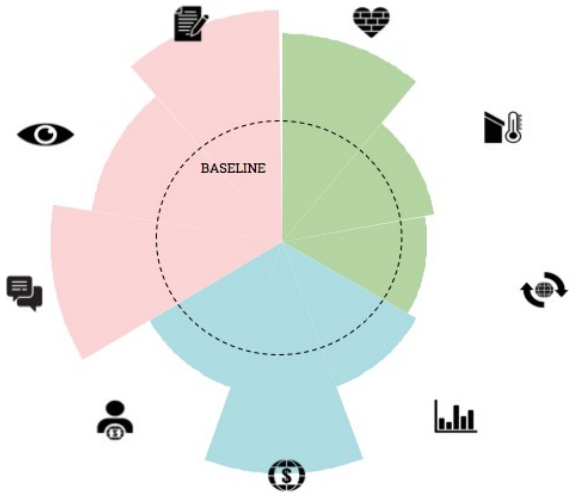
The diagram is a visualisation of the method itself, i.e. the collection of data.
The method is a more general parameter than the value creation and does not depend on whether the effects exceed Baseline or not, just that data for both is obtained. The method is more like a way for the architectural firm to gather as much knowledge about the project - before, during, and after - as possible.

Neither chart nor percentage should be seen as a whip, but rather as a carrot to continuously collect, write down and articulate the value that architects constantly help to create.

SUMMARY 2.0

Mapping value creation next to Baseline.



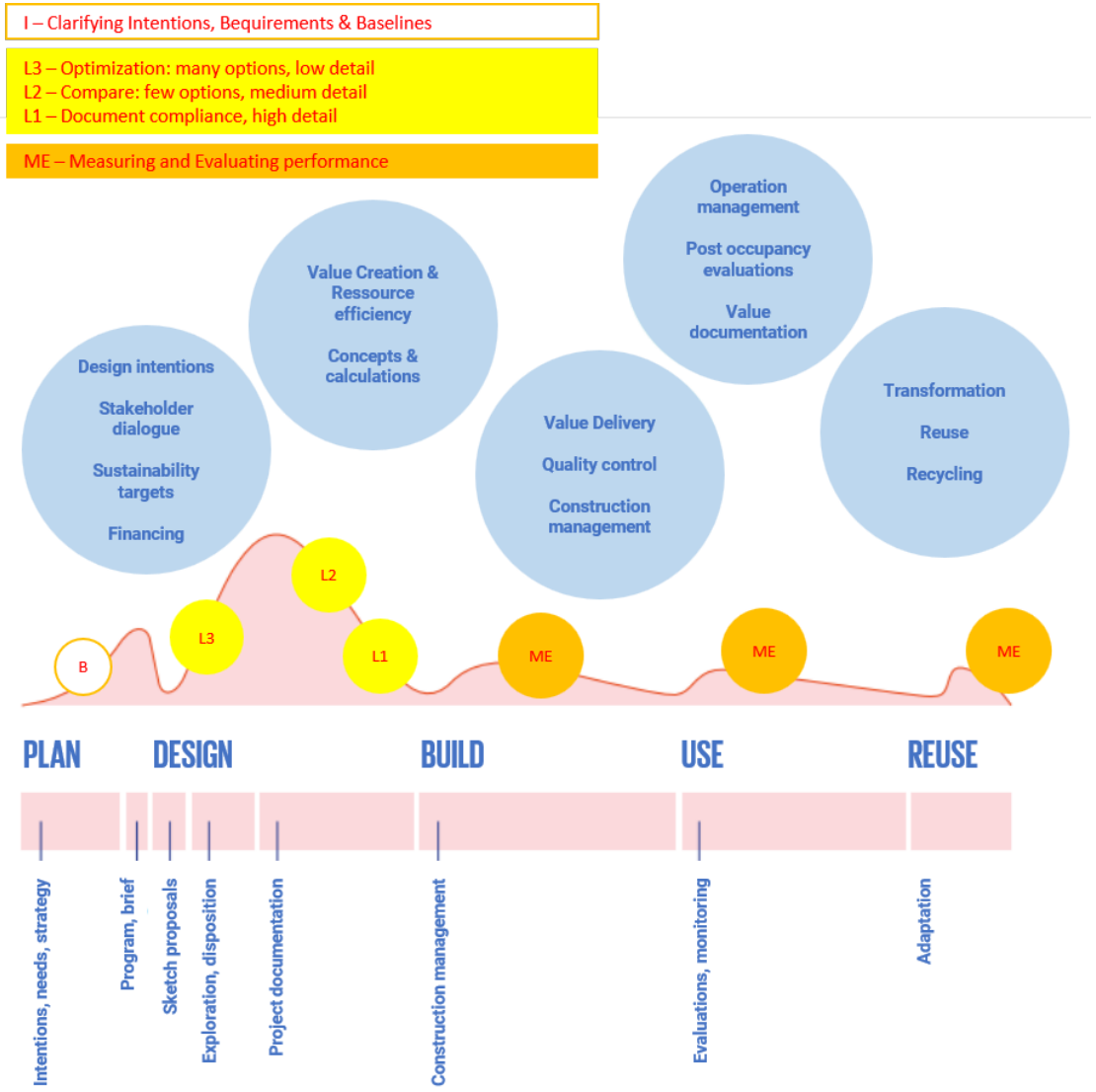


The correlation between Baseline and Effect can be said to be the quantified documentation of value creation on a specific parameter in a project.

The comparison between the situation before and after the completion of the project is important in the documentation of value creation:

- Effect next to Baseline = Documentation
- Effect exceeding Baseline = Documented Value Creation

Level(s):


I – Clarifying Intentions, Requirements & Baselines
L3 – Optimization: many options, low detail
L2 – Compare: few options, medium detail
L1 – Document compliance, high detail
ME – Measuring and Evaluating performance
Design intentions
Stakeholder dialogue
Sustainability targets
Financing
Value Creation & Ressource efficiency
Concepts & calculations
Value Delivery
Quality control
Construction management
Operation management
Post occupancy evaluations
Value documentation
Transformation
Reuse
Recycling
B
L3
L2
L1
ME
ME
ME
PLAN
DESIGN
BUILD
USE
REUSE
Intentions, needs, strategy
Program, brief
Sketch proposals
Exploration, disposition
Project documentation
Construction management
Evaluations, monitoring
Adaptation

Architectural qualities?

DANSKE ARKITEKT VIRKSOMHEDER

DOWNLOAD for free:
www.danskeark.dk/content/architect-document-your-value-creation

METHOD	PLAN	DESIGN	DOCUMENT	USERS COMMUNITIES Map the value creation for these three stakeholder groups.
	Define stakeholders and chart their …		…success …criteria. Include new criteria, where relevant.	
	…needs a…	…expected	Document value creation by **comparing** measured and observed effects with the baseline and relating to costs.	
	…es.	**…adjust** the re-		
	…ganisa- …references …later comparisons.	…sources if necessary.		
SOCIAL	DEFINE SOCIAL OBJECTIVES	DESIGN FOR SOCIAL EFFECTS	DOCUMENT SOCIAL EFFECTS	INTERVIEWS OBSERVATION STUDIES QUESTIONNAIRES Document the social value creation.
ENVIRON-MENT	DEFINE ENVIRONMENTAL OBJECTIVES	DESIGN FOR ENVIRONMENTAL EFFECTS	DOCUMENT ENVIRONMENTAL EFFECTS	WELL-BEING AND HEALTH ENVIRONMENTAL QUALITIES LIFE CYCLE ASSESSMENT Document the environmental value creation.
FINANCING	DEFINE FINANCIAL OBJECTIVES	DESIGN FOR FINANCIAL EFFECTS	DOCUMENT FINANCIAL EFFECTS	CONSTRUCTION FINANCING OVERALL FINANCING TOTAL VALUE Document the financial value creation.

SDG + LEADERSHIP + VALUE CREATION

DANSKE ARKITEKT VIRKSOMHEDER

+

+

=

DANSKE ARKITEKT VIRKSOMHEDER

MANAGEMENT

STAFF

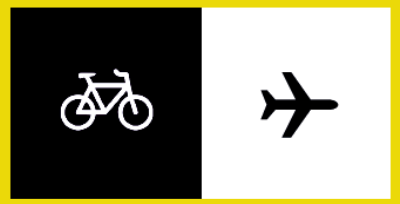
WALK THE TALK

SDG ARCHITECTURE

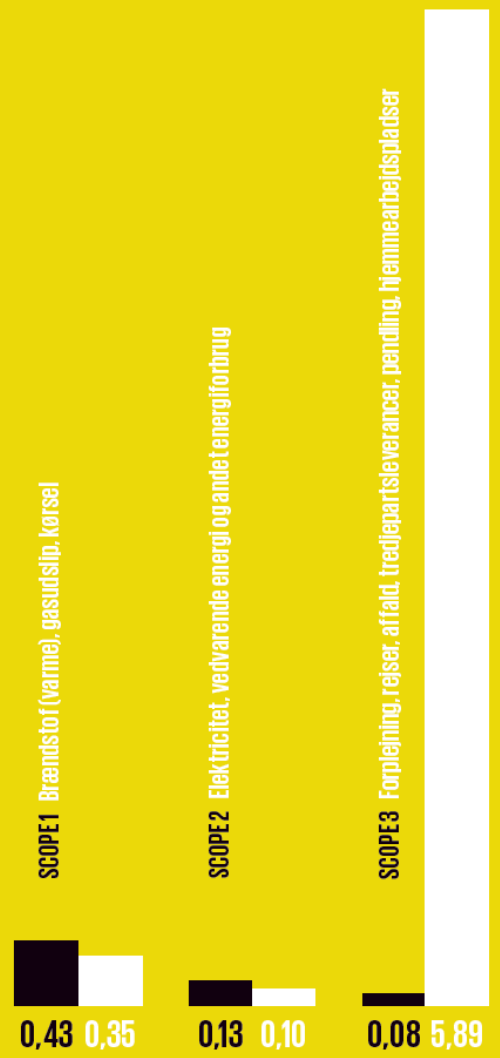
13 CLIMATE ACTION

Vi sidder i et lokale, der er større end vi har behov for. Vi har foreslået ejendomsejer at energirenovere ejendommen. Og da vi kan lave en case, der både gavner lejer og ejer, ved vi ikke hvad de venter på. Heldigvis sparer vi mange ressourcer ved at kunne cykle rundt til vores projekter. Og de renoveringsprojekter vi laver, forlænger levetiden på bygningerne og sparer klimaet for påvirkningerne ved at rive ned og bygge nyt.

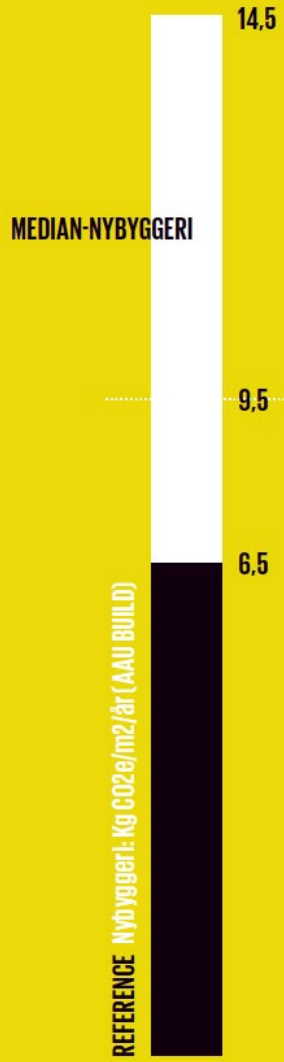
Vi arbejder målbevidst med innovation og forsøger at ændre måden man bygger på i retning af cirkulær økonomi – i Danmark og internationalt. Projekter med cirkulær økonomi kan spare klimaet for mange tusind ton CO2. Men flyrejser giver et højt klimaaftryk pr. rejse. Vi har undersøgt mulighederne for at reducere vores aftryk, og har besluttet at klimakompensere for alle vores rejseaktiviteter.



KRYDSRUM 3XN



Klimaaftryk 2019 pr. medarbejder (Ton CO2 pr. person). Virksomhedernes projekters klimaaftryk er ikke medregnet.



3XN:

Vi arbejder med cirkulær økonomi – dvs genbrug og genanvendelse af konstruktioner og materialer. Det kan spare 50% af ressourceforbruget.

GENBRUG OG GENANVENDELSE: -50% CO2

Illustration: 3XN

KRYDSRUM:

Vi renoverer og bygger om. Det forlænger levetiden af bygninger og materialer, og kan spare 80% af ressourceforbruget.

RENOVERING -80% CO2

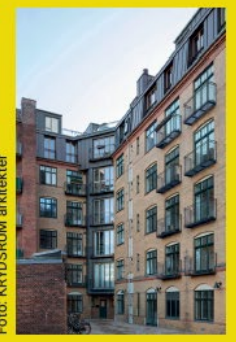


Foto: KRYDSRUM arkitekter

What are you already doing?

- Sikre god luft, godt lys og god lyd på arbejdspladsen.
- Fremme bevægelse fx gennem firmamotion.
- Stående møder.
- Sikre tilgængelighed, tryghed, sikkerhed I virksomheden.
- God vejvisning i virksomheden.
- Miljørigtigt inventar og rengøringsmidler.
- Sundhedsforsikring.

Køreplanen

DESIGN

CHECK

PLAN

EXECUTE

UPDATE

PLANLÆG | DESIGN | UDFØR | EVALUÉR | OPDATÉR

LEDELSENS ARBEJ…
SIDE 47 Hvor vil I hen – og hvordan? Brug busine…
SIDE 49 Lav inter… anvas
SIDE 51 SWOT jer selv… yse(r)
SIDE 53 SWOT jer selv for h… mhed
SIDE 55 Saml op – Opdater jeres strategi og s… vilhen
…seline

VIRKSOMHEDENS FORANDRINGSPROCES
REFLEKSION I SAMARBEJDE MED MEDARBEJDERNE
SIDE 63 Verdensmål og indikatorer og benchmarks
SIDE 67 Prioritering
SIDE 69 Porteføljeanalyse
SIDE 71 Saml op - Allokering af ressourcer og tid

WAL… LK
IMPLEMENTERING I VIRKSOMHED… AG
SIDE 99 Medarbej… ue
SIDE 101 Organise… ing
SIDE 103 Mål…
VERDENSMÅLSA… UR
IMPLEMENTERING I VIRKOMHED… TER
SIDE 113 Lav en køreplan for… kter
SIDE 137 Projektanalysen
SIDE 139 Sæt mål og forfølg dem

OPSAMLING
VIRKSOMHEDENS REFLEKSION
SIDE 181 Hvordan I kan samle op på jeres forandringsproces og projekter?

F… G
VIRKSOMHEDENSERFARIN… der-
SIDE 187 Opdater køreplan… bog
håndbog og p…

3 SUNDHED OG TRIVSEL

DE FYSISKE OMGIVELSER KAN DESIGNES TIL AT GØRE BRUGERE SUNDE, BÅDE UNDER OPFØRELSE OG I BRUG, OG NEGATIVE SUNDHEDSPÅVIRKNINGER KAN FOREBYGGES.

Eksempler på designstrategier og virkemidler:

Når alle skal sikres et godt helbred, handler det om at have fokus på:

- Rum med højt til loftet og passende rumdybde, Indeklimamærkede, miljødeklarerede byggevarer og rengøringsmidler, dagslysoptimering, solorienteret vinduessætning, reflektorer, lyshylder, ingen blænding og overophedning, natkøling, hybrid ventilation, jordkøling, vandkøling etc., overflader, der sikrer god akustik, lydsvage teknologier.
- Inklusive rum og universelt design.
- Helende arkitektur.
- Gode rekreative faciliteter, idrætsfaciliteter og legefaciliteter med fornuftig vedligeholdelse.
- God belysning og vejvisning (tryghed og sikkerhed).
- Rum med stærk visuel forbindelse til omgivelserne.
- Prioritering af aktiverende cirkulation og ruter fx trapper, cykelparkering, gangruter.
- Planter.

DANSKE ARKITEKT VIRKSOMHEDER

Verdensmålsarkitektur!

Den største værdiskabelse* for et projekt sker i d robund for nye forretningsområder og ydelse se i flere af byggeriets senere faser:

DESIGN

USE

PLANLÆG

BYGHERRE
ARKITEK

- B
- P
- B
- K
- T
- Strategisk/økonomisk rådgivning
- Porteføljemanagement

PLAN

DESIGN

ARKITEKT
INGENIØR

- Bæredygtighedsledelse
- Planlægning og proces
- Brugerinddragelse
- Kontekstanalyser
- Totaløkonomi
- Livcyklusanalyser
- Bæredygtighedscertificering
- Indeklima og energi
- Teknisk udførelse
- Genanvendelse og bortskaffelse
- Integreret design
- Inhouse ingeniørteam
- Lean kompetencer

UDFØR

ARKIT
ING

- Brugerinddragelse
- Kontekstanalyser
- Totaløkonomi
- Livcyklusanalyser
- Bæredygtigheds-certificering
- Indeklima og energi
- Teknisk udførelse

BUILD

BRUG

ARKITEKT
INGENIØR
ENTREPRENØR
BYGHERRE/
DRIFTSORGANISATION

- Bæredygtighedsledelse
- Brugerinddragelse
- Genanvendelse og bortskaffelse
- Brugeranalyser
- Big data
- Bedre brugerkontakt

GENBRUG

ARKITE

- BYGHERRE
- ARKITEKT
- INGENIØR
- ENTREPRENØR
- BYGHERRE/DRIFTSORGANISATION
- ANDRE

REUSE

PLANLÆG | DESIGN | UDFØR | EVALUER | OPDATER

*ARKITEKT-DOKUMENTERDINVERDISKABELSE, YDELSESBESKRIVELSEN SIDE 132

UN 17 SUSTAINABLE DEVELOPMENT GOALS – our new guide

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DOWNLOAD for free: (in Danish only)
www.danskeark.dk/content/de-17-verdensmaal-saadan-kommer-i-i-gang

Architecture World Congress - UIA 2023 Copenhagen

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