EIP-SCC
European Innovation Partnership on Smart Cities and Communities

Joint Session

'Smarter Together' SCC-01 project and 'Integrated Planning, Policy and Regulations' Action Cluster Meeting

27 June 2018

Hotel Marinela, Sofia (BG)

Agenda

9:00 – 9:15	**Welcome and Introduction** **Georg Houben –** EC **Simona Costa –** AC Leader **Georgi Georgiev –** Fraunhofer Institute for Building Physics
9:15 – 10:45	**Retrofit Management Standards in 'Smarter Together'** **Joachim Lonien** – DIN
10:45 – 11:00	**Coffee Break**
11:00 – 11:30	**Energy Efficiency – Roadmap for Sofia** **Georgi Georgiev** – Fraunhofer Institute for Building Physics
11:30 – 12:00	**The Smart City Guidance Package** *Brief introduction, roadmap and integrated planning, management and replication of Smart City projects* **Bernard Gindroz** – CEN CENELEC **Judith Borsboom-van Beurden** – NTNU
12:00 – 12:50	**Interactive brainstorming session** Moderated by **Bernard Gindroz & Joachim Lonien**
12:50 – 13:00	**Wrap up and Next steps** **Simona Costa & Georgi Georgiev**

EIP-SCC
European Innovation Partnership on Smart Cities and Communities

EIP-SCC
European Innovation Partnership on Smart Cities and Communities

Simona Costa
Costa & Partners – 'IPPR' Action Cluster
Chair & Initiative Lead
simona.costa@costa-partners.eu

EIP-SCC
European Innovation Partnership on Smart Cities and Communities

Georg Houben
European Commission – DG ENERGY
Georg.HOUBEN@ec.europa.eu

EIP-SCC
European Innovation Partnership on Smart Cities and Communities

Georgi Georgiev
Fraunhofer Institute for Building Physics
georgi.georgiev@ibp.fraunhofer.de

CEN Standard
Sustainable Energy Retrofit Process Management for Multi-Occupancy Residential Buildings with Owner Communities

Market demand & interested stakeholders

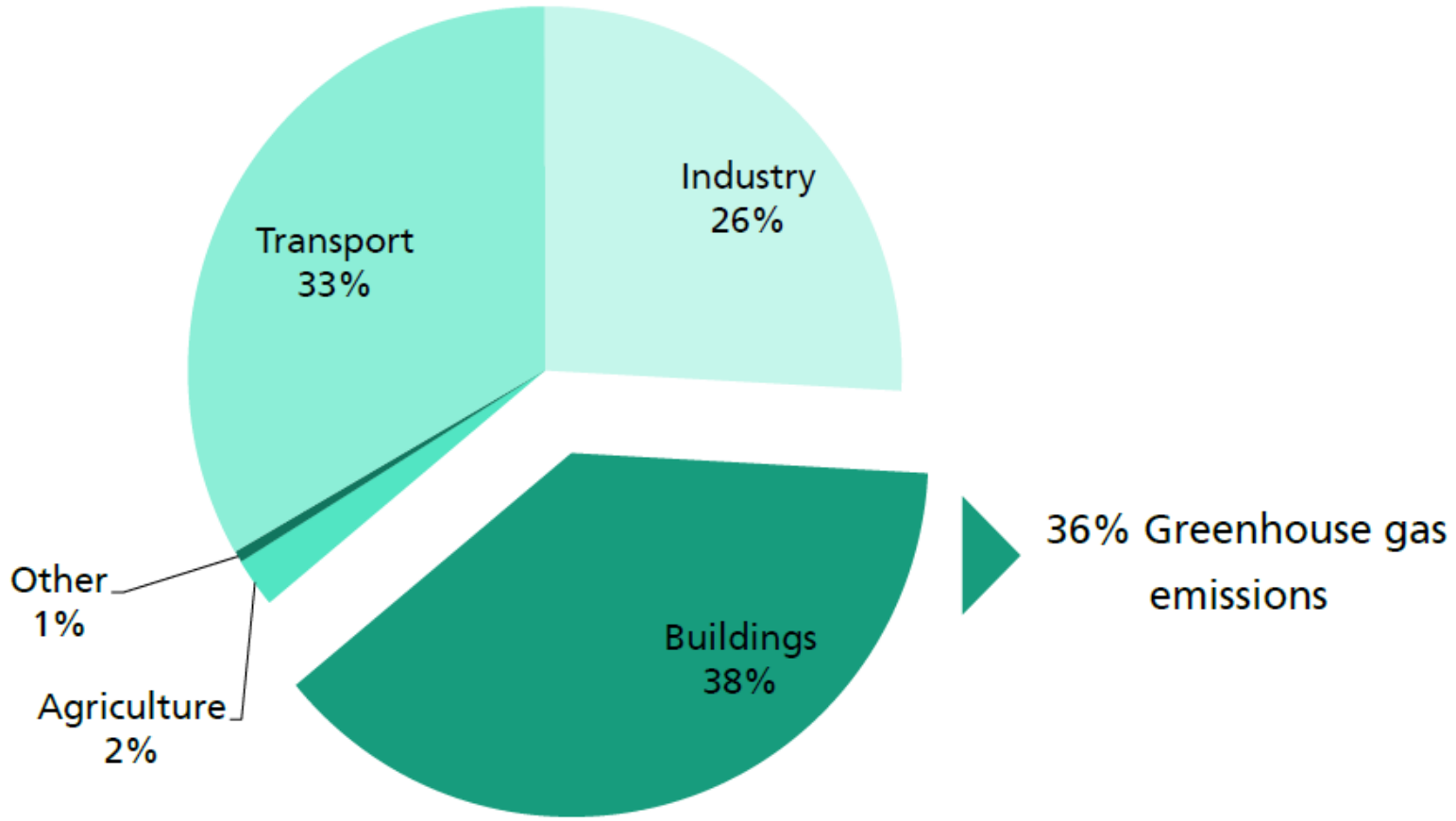
Georgi Georgiev
Sofia, 27.6.2018

Auf Wissen bauen

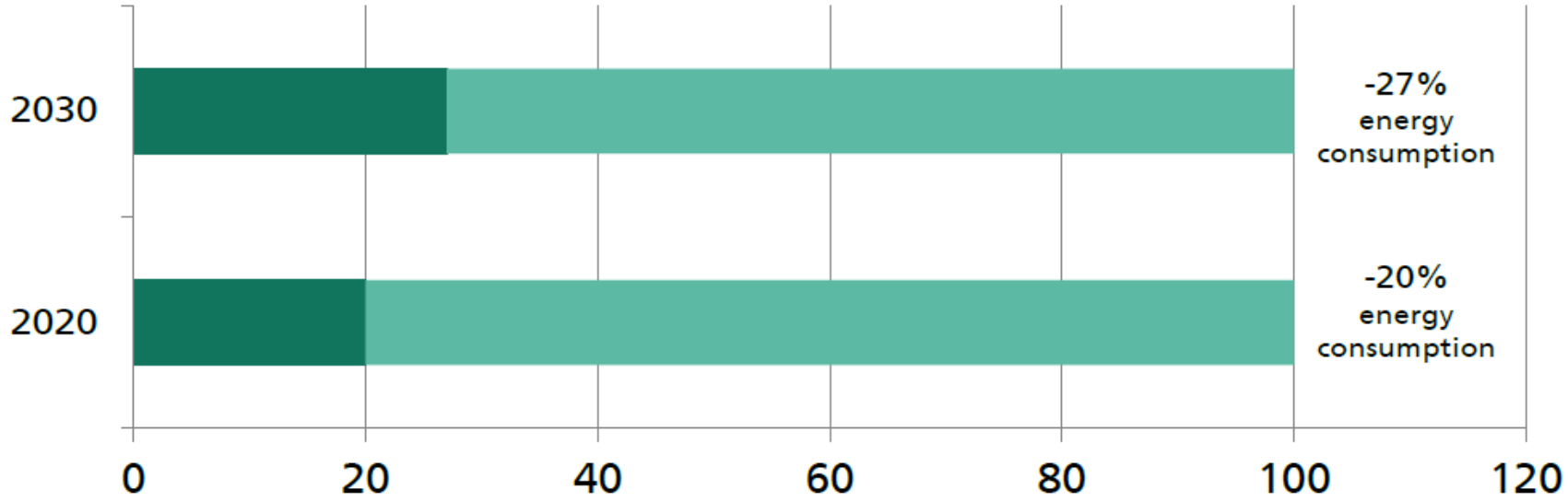
offen

Fraunhofer IBP

Energy consumption by sector



EU's targets for 2020 and 2030



- Building renovation is a key element in reaching the long-term energy and climate goals

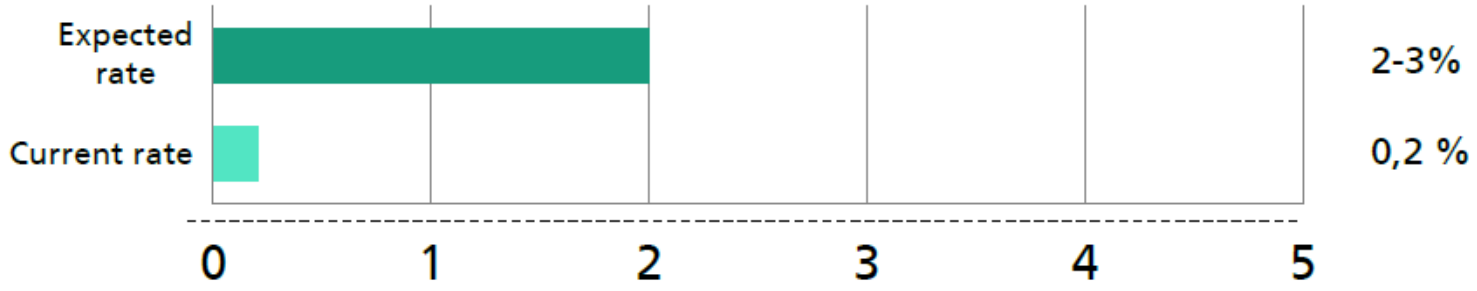
- The building sector is considered as a key factor in all EU's energy, climate and resource efficiency related strategies by 2050.

Documents related to improvements in energy energy performance of Europe's building stock

- Energy Performance of Buildings Directive (EPBD),
- Energy Efficiency Directive (EED),
- Renewable Energy Directive (RED),
- Eco design Directive,
- Energy Labelling.

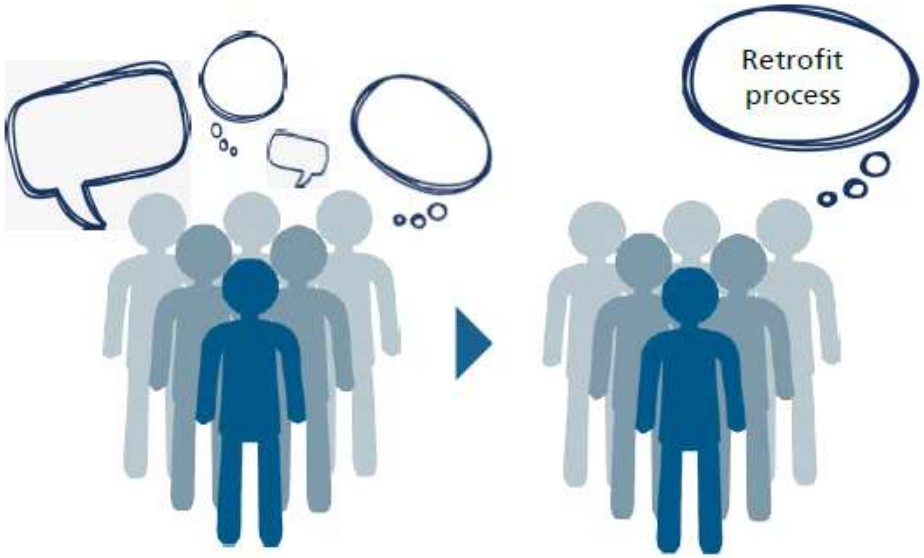
Renovation rates in the EU

- Renovating the existing building stock remains a challenge,
- Ambitious levels set by the EPBD ⇢ aims for nearly zero-energy buildings (nZEBs),
- Retrofit process is not a common practice today,
- Key objective: increasing the rate of sustainably functioning existing residential buildings.



Current situation

- The difficullties of owner-occupants in reaching collective decision on renovation and improving energy efficiency appears as a problem,
- Levels of refurbishment in apartment blocks are often lower than in single-family houses ⇢ complexity of reaching agreement and involvement of different stakeholders.



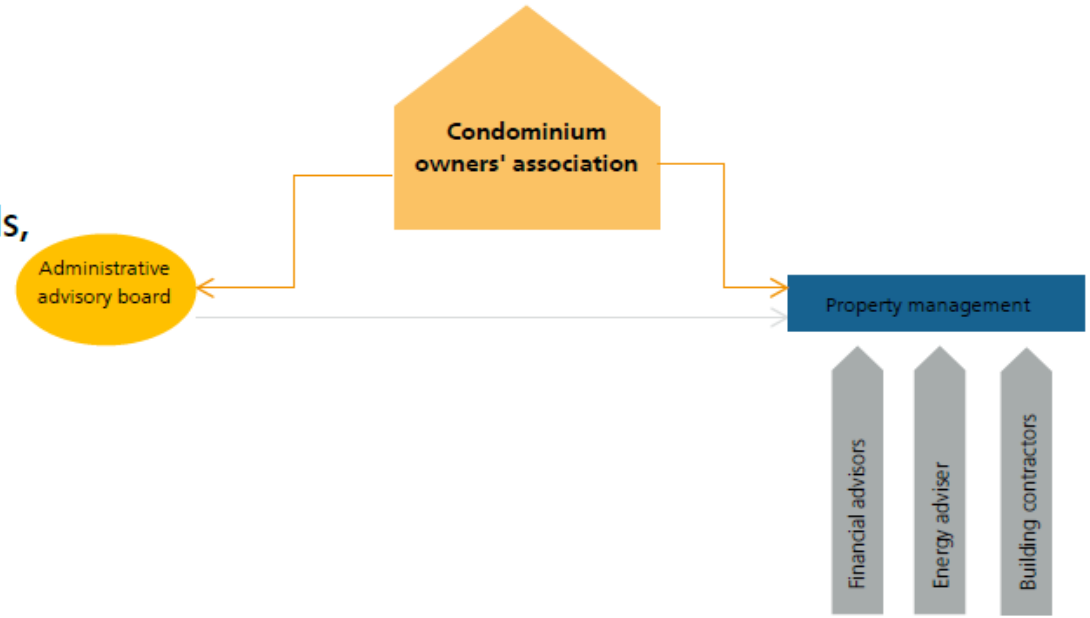
Picture source: www.downloadclipart.net

Market demand - the challanges

- Lack of a standardized process management methodology for the energy retrofit of existing multi-occupancy residential buildings with owner communities,
- Lack of a standardized quality management methodology before, during and after retrofit process of existing multi-occupancy residential buildings with owner communities.

Relevant stakeholders

- Homeowner association,
- Owner communities,
- Property managers,
- Administrative advisory boards,
- Planners,
- Municipal consulting units,
- Energy advisors and
- Policy makers.



Creating the EU Standard

A legal framework would be helpful to establish:

- Obligations and responsibilities,
- Requirements for retrofitting,
- Rights and privileges of owners of apartments and
- Rights and privileges of all linked stakeholders.

Fraunhofer IBP

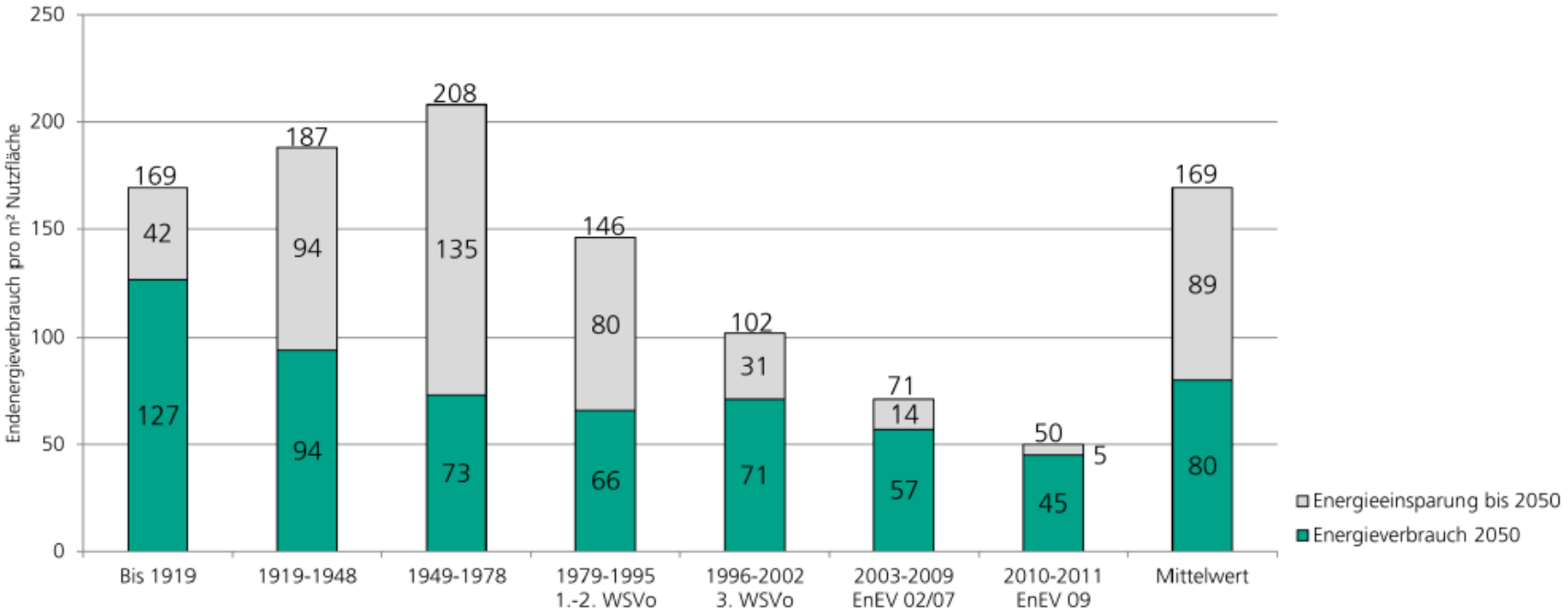
SMARTER TOGETHER

Improvement ~~retrofit~~ strategy for existing multi-occupancy residential buildings with Owner communities

Georgi Georgiev

Climate protection goals of the German Federal Government

- Climate neutral building stock until 2050 through -80% Primary energy demand

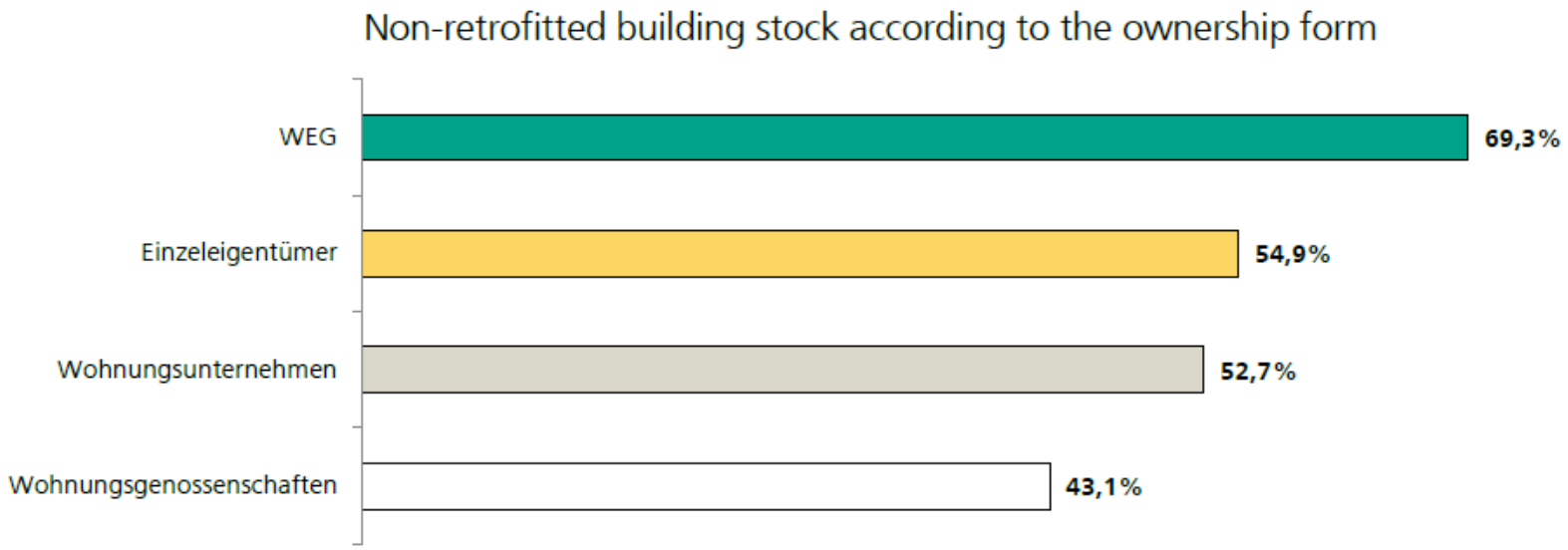


Quelle: BMWi, eigene Darstellung

- In order to reach this goal we need an **annual retrofit rate of 2%**

Status quo

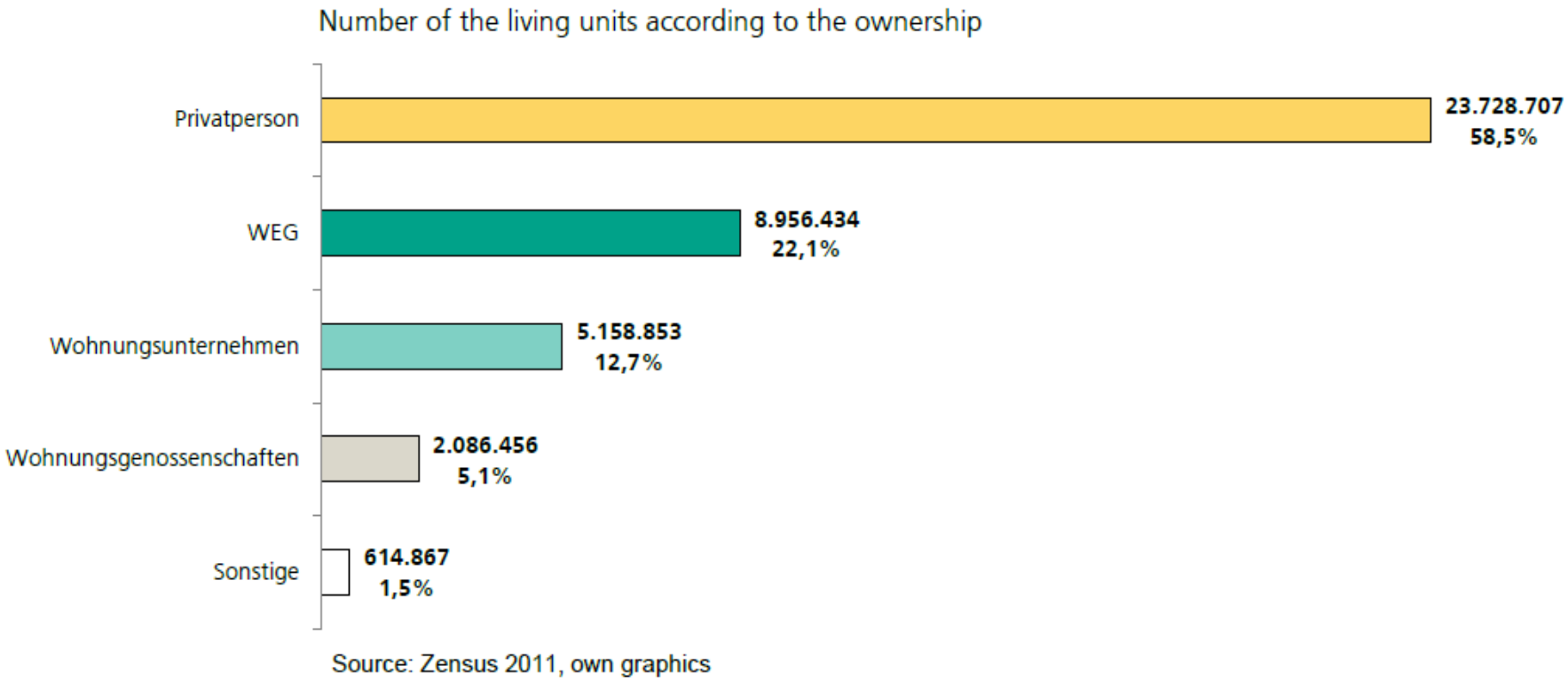
- Current annual retrofit rate of almost 1%



Sourcee: InWis, own graphics

- Annual retrofit rate of multi-occupancy residential = only **0,6-0,7%**

Importance of the OC-blocks for the living space market



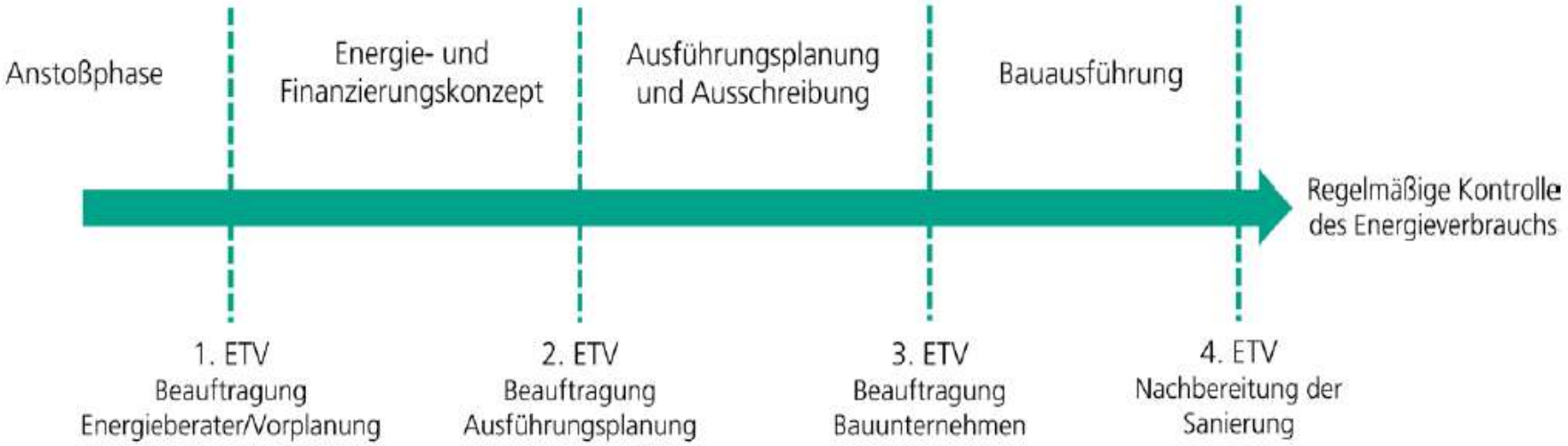
Source: Zensus 2011, own graphics

Fraunhofer
IBP

Why is the OC building stock improvement so complex?

Fraunhofer IBP

Process of planning and execution of the retrofit



- Duration of the decision process – usually 2-3 years

Fraunhofer IBP

Most important hurdles according to the owners

	Umfrage W.i.E	Studie BBSR
Alter	30%	28%
Passive Eigentümer	31%	-
Kein Eigenkapital vorhanden	-	31%
Kein Kredit möglich	14%	13%

Fraunhofer IBP

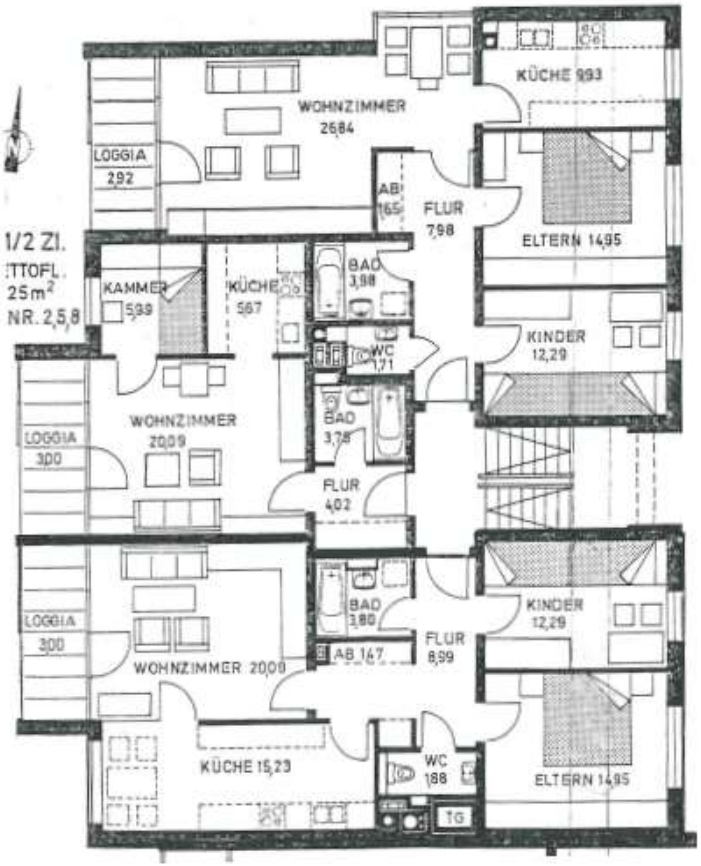
Crucial drivers according to the owners

	Umfrage W.i.E	Studie BBSR
Werterhaltung	86%	67%
Sowieso Sanierungsbedarf	48%	51%
Energieeinsparung	44%	60%
Erhöhung Wohnkomfort	39%	57%

Fraunhofer IBP

The retrofit concept

A retrofit object: OC-building with 21 living units



Determination of the owners' expectations

- Questionnaire action among the owners

1.
Die folgenden Motive veranlassen mich eine energetische Sanierung durchzuführen.

	Trifft nicht zu	Trifft eher nicht zu	Trifft eher zu	Trifft voll zu
Einen Beitrag zum Klimaschutz leisten	○	○	○	○
Steigerung des Wohnkomforts	○	○	○	○
Energiekosten einsparen	○	○	○	○
Werterhaltung der Immobilie	○	○	○	○

Sonstige:

2.
Die folgenden Umstände stören mich bei der Nutzung der Wohnung.

	Trifft nicht zu	Trifft eher nicht zu	Trifft eher zu	Trifft voll zu
Probleme beim Öffnen und Schließen der Fenster	○	○	○	○
Zugluft bei geschlossenem Fenster	○	○	○	○
Kalte Wände	○	○	○	○
Aussehen der Außenfassade	○	○	○	○
Schimmelbildung	○	○	○	○
Energiekosten	○	○	○	○

Sonstige:

Fraunhofer IBP

RETROFIT OPTIONS

Variante 1 Geringster Aufwand Niedrige Kosten	Innendämmung 12cm Dämmung Kellerdecke 14cm Neue Verglasung Solarthermie 70m²
Variante 2 Sanierung mit Gerüst Mittlere Kosten	Außendämmung 16cm Dämmung Kellerdecke 14cm Neue Verglasung Solarthermie 50m²
Variante 3 Komplettsanierung Hohe Kosten	Außendämmung 16cm Dämmung Kellerdecke 14cm Neue Fenster Solarthermie 50m² Dezentrale Lüftung mit WRG
Variante 4 Sanierung mit Gerüst PV Stromerzeugung	Außendämmung 16cm Dämmung Kellerdecke 14cm Neue Verglasung Solarthermie 50m² PV Anlage 20kWp

Fraunhofer IBP

Calculation of the payback time according to the net present value method

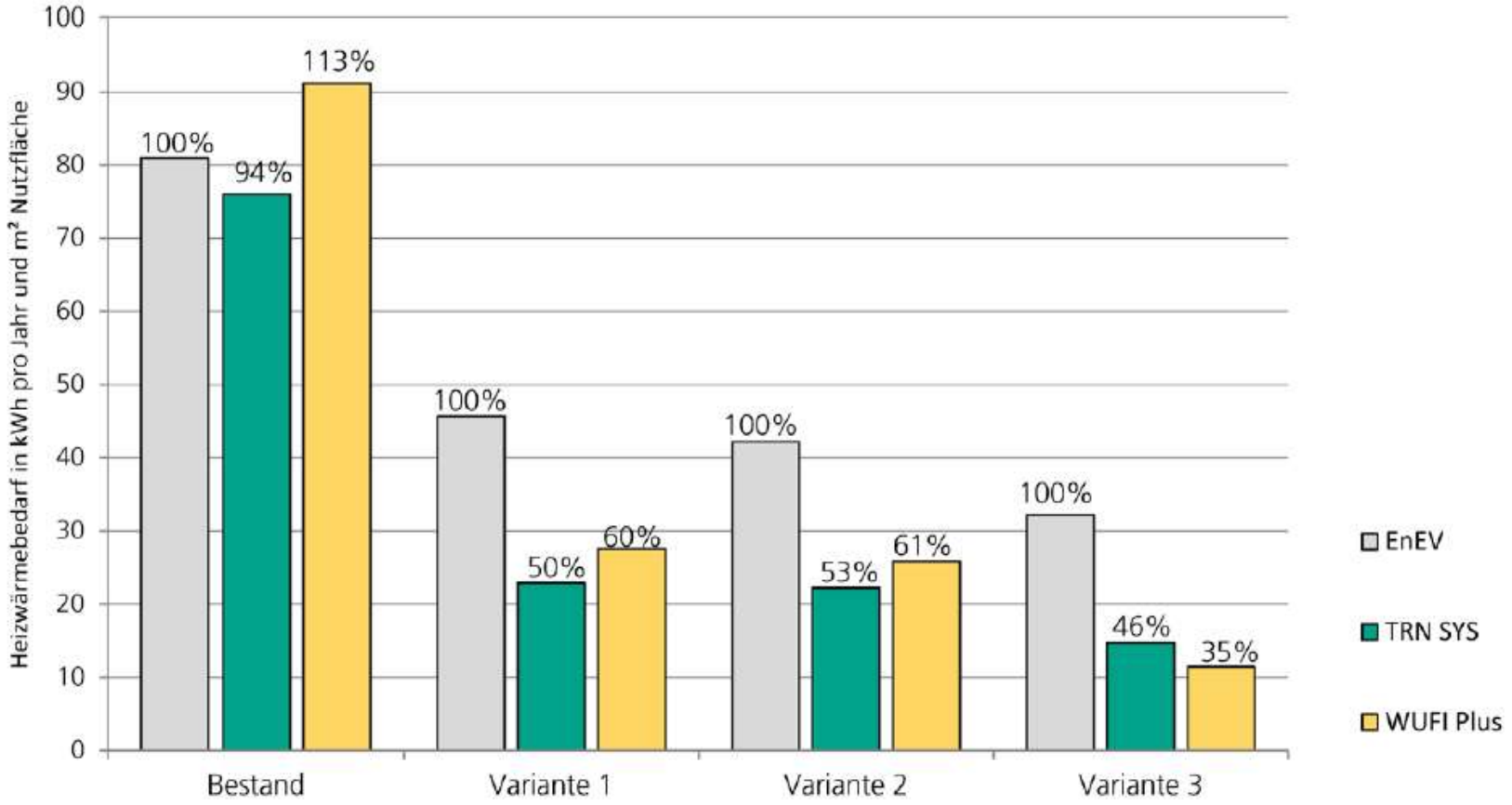
	Variante 1	Variante 2	Variante 3	Variante 4
Investitionssumme	158.313,61 €	174.168,75 €	433.770,69 €	212.830,19 €
Energiekosteneinsparung	4.688,95 €	4.868,28 €	5.744,31 €	5.482,95 €
Zinssatz	2%	2%	2%	2%
Energiepreissteigerung	5%	5%	5%	5%

Amortisationszeit in Jahren	**24,1**	**25,2**	**40,8**	**26,6**

- Wahl der Variante 2

Fraunhofer IBP

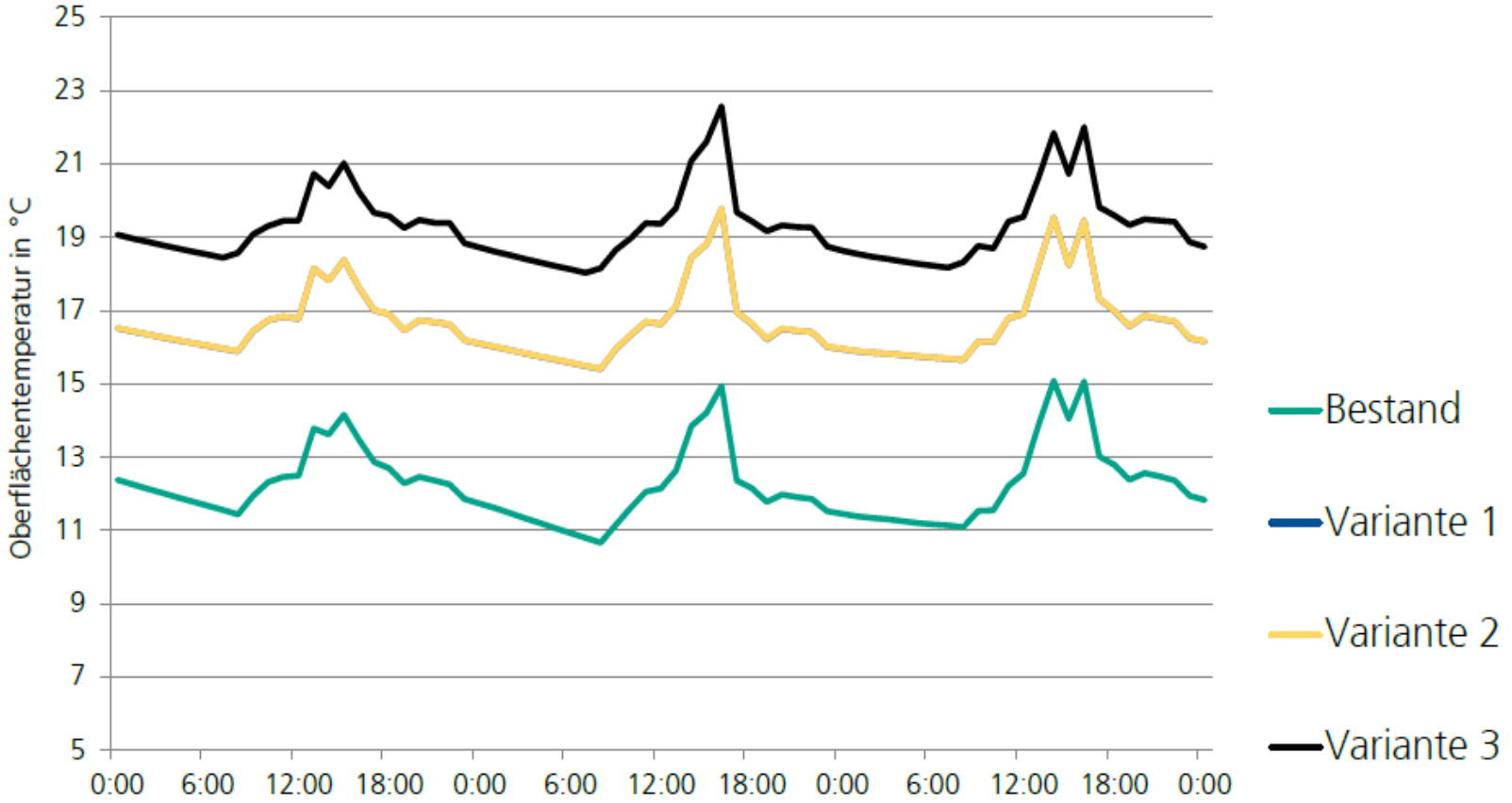
Comparison of the energy demand



Fraunhofer IBP

Determination of the living comfort improvement by using a dynamic simulation

- Surface temperature at the windows in February



Fraunhofer IBP

Financing

Fraunhofer
IBP

Vertical Redensification

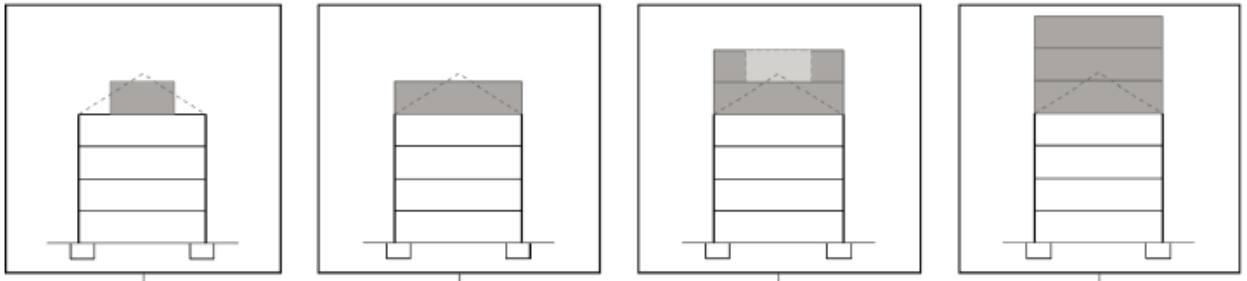
Vertical redensification

At multi-occupancy residential buildings with owner communites

Potential of adding floors for multi-occupancy residential buildings with OCs

Fraunhofer IBP

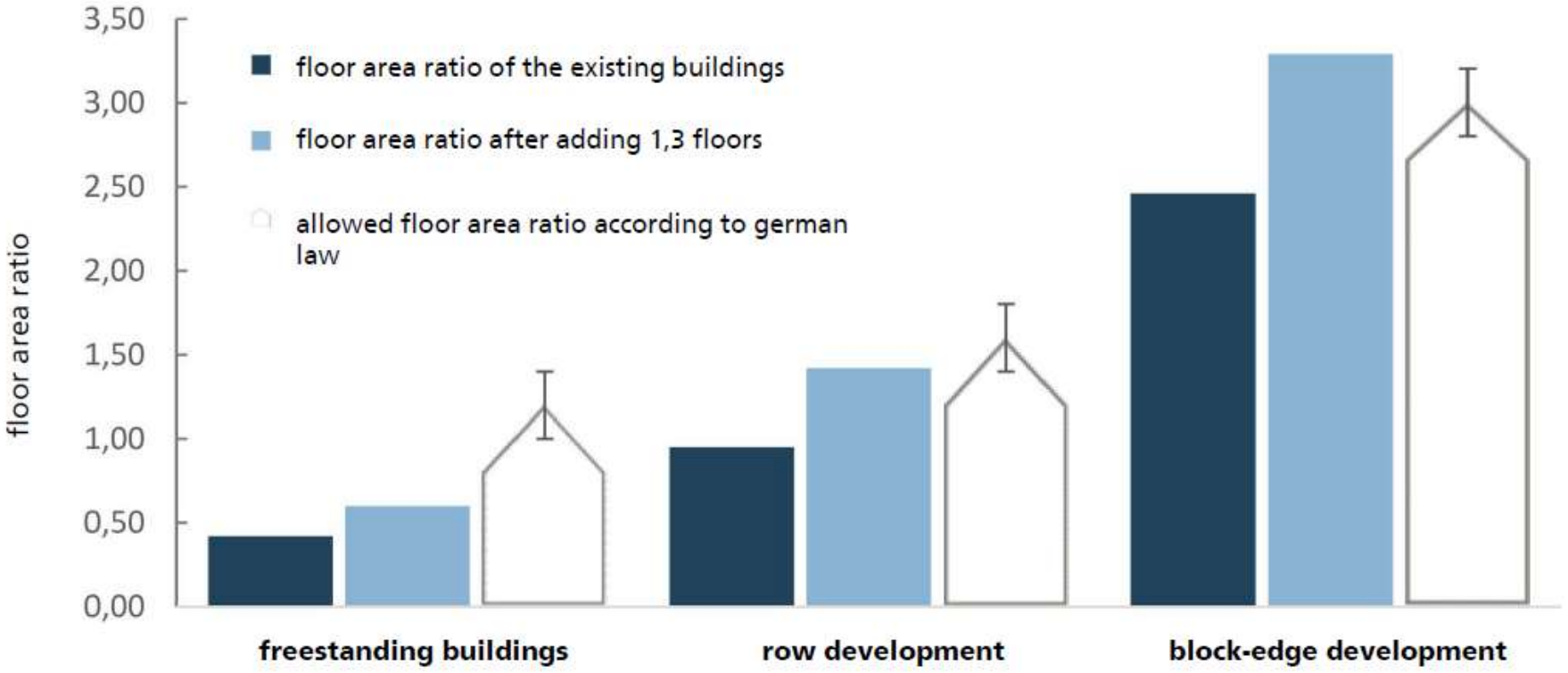
Possibility of adding floors to buildings



Type of vertical redensification	Penthouse floor	1 floor	2 floors	3 floors
Potential	60 to 90% of the building stock	85 to 90% of the building stock	35 to 45% of the building stock	2 to 5% of the building stock
Realization	A problem can be the load transfer in the existing support structure. A additional ceiling can be necessary.	Easy to realize, load transfer is difficult if there are complex support structures and roof shapes.	Expensive if the load reserves of the support structure are exceeded.	A exceed of the load reserves at buildings with under 5 floors is probable.

On average adding 1.3 floors per building is possible.

Adding floors depending on the legal factors

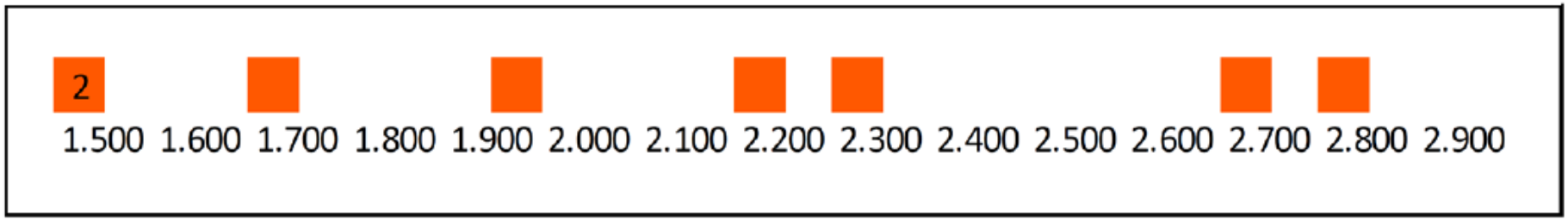


Adding 1,3 floors is acceptableaccording to the German law.

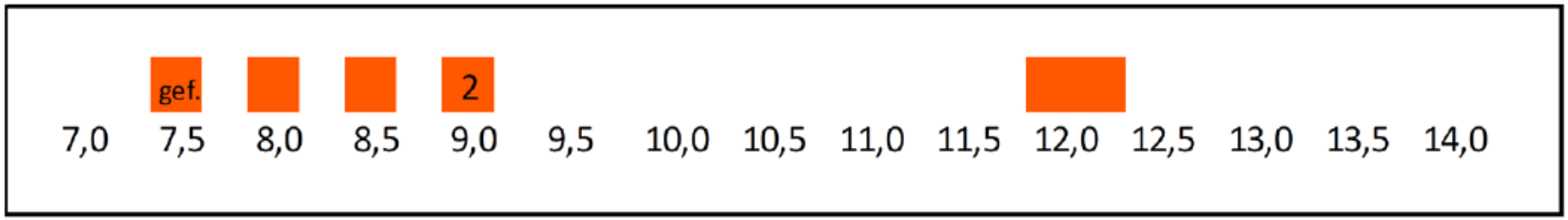
Fraunhofer IBP

Construction costs and rental prices of added floors

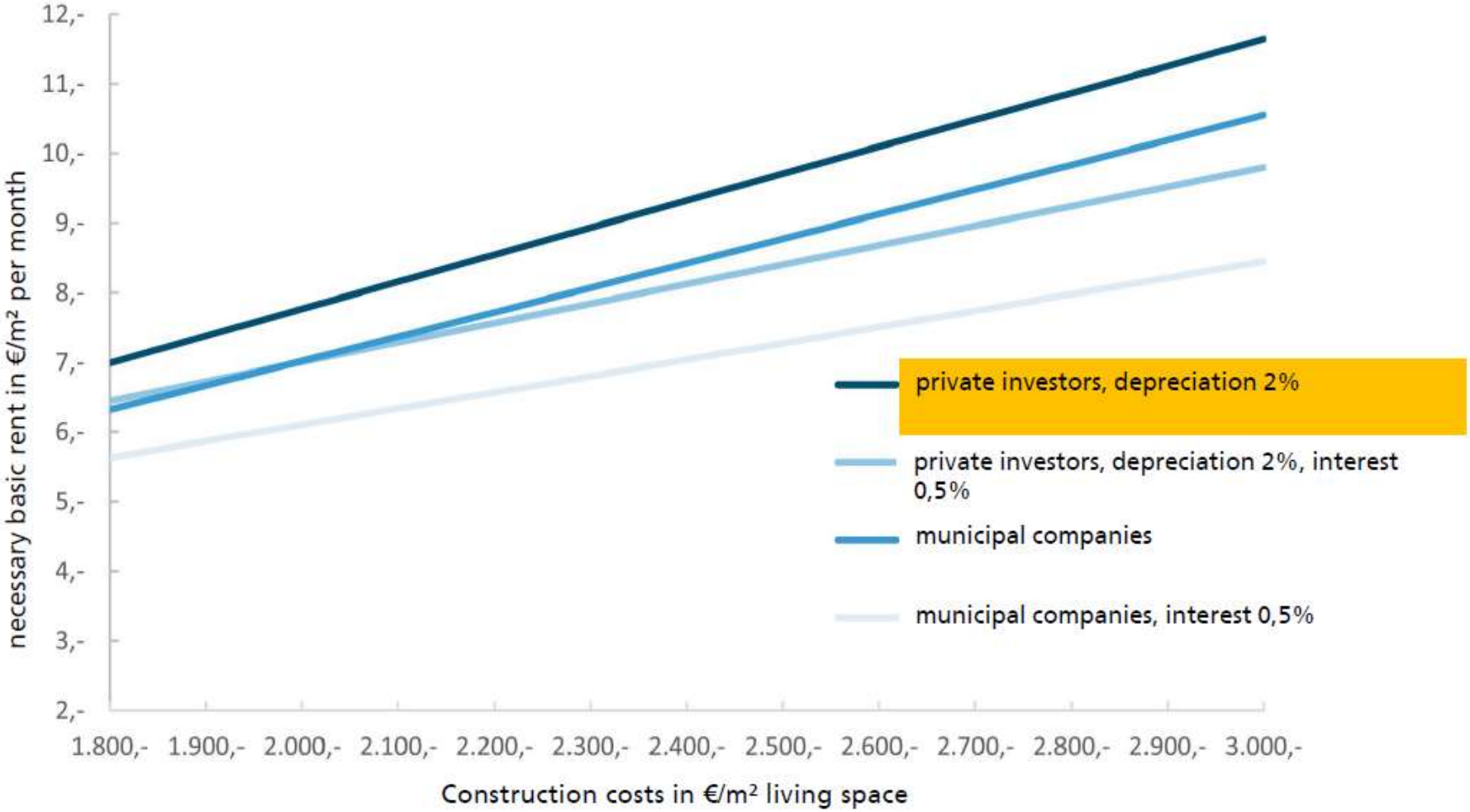
Construction costs in € per m² living space



Rental prices in € per m² living space



Necessary basic rent for a return on equity of 4%.



Fraunhofer IBP

Possible extensions of buildings with an energetic retrofit

roof extensions

adding a floor

adding a penthouse floor

adding a floor with an overhang

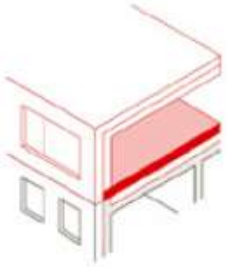
Possible extensions of buildings with an energetic retrofit

building envelope

Load transfer through the existing ceiling

stable existing ceiling

reinforced existing ceiling



new additional ceiling

replacement of the existing ceiling

lau-

Load transfer through the walls

New walls on a new foundation

New walls on an existing foundation

Existing walls on an existing foundation

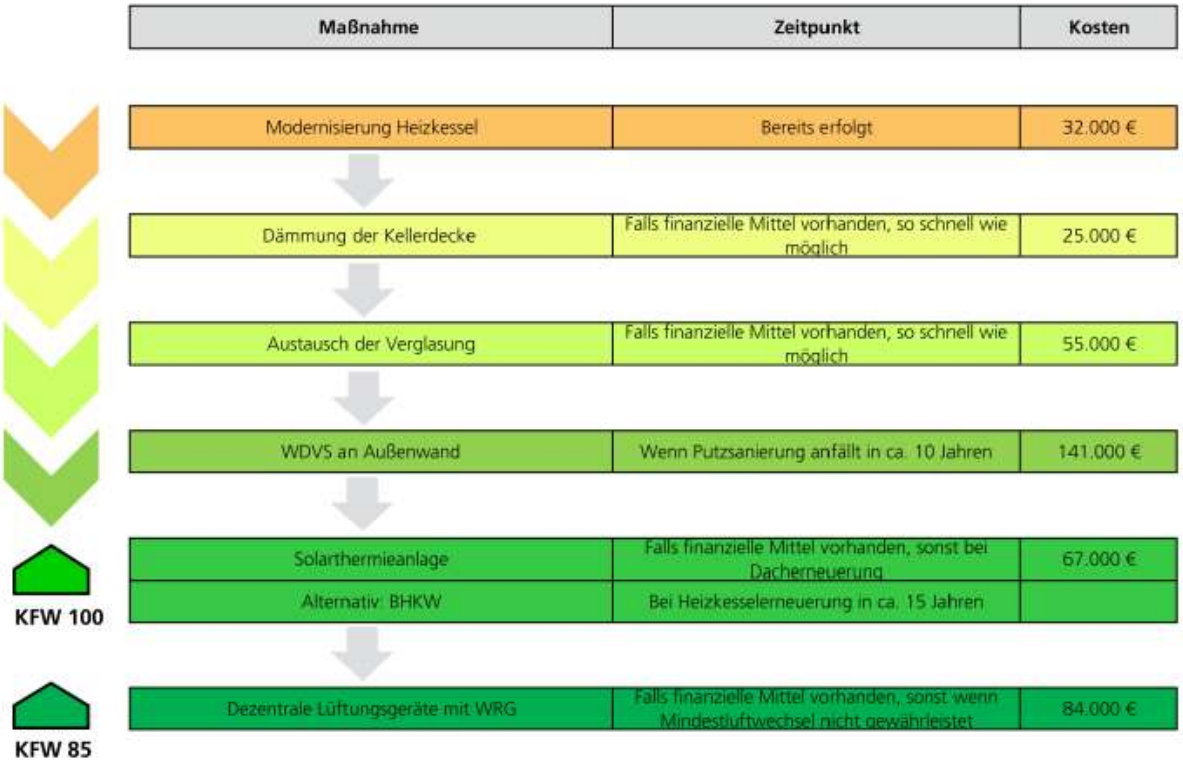
Existing walls on an existing foundation with reinforced structures

Fiancing through 1 additional floor construction

Baukosten Aufstockung brutto	200 m² WF	2975 €/m²	-	595.000,00 €
Planungskosten 16%			-	95.200,00 €
Ablösung Stellplätze			-	16.800,00 €
Baukosten Sanierung Bestand brutto			-	377.000,00 €
Förderungen				203.000,00 €
Verkauf Wohnungen	200 m² WF	6000 €/m²		1.200.000,00 €
Gebühr Makler und Notar 4%			-	48.000,00 €
Gewinn				**271.000,00 €**

Sanierungsfahrplan

- Zeitliche Aufteilung der Maßnahmen mit einem Sanierungsfahrplan, um finanzielle Belastungen zu senken



Fraunhofer IBP

Festsetzung der Instandhaltungsrücklage nach dem Sanierungsfahrplan

Jahr	Instandhaltungs-rücklage	Auszahlung	Anlass	Einzahlung	Einzahlung pro m² Wohnfläche
1	18.000,00 €	- €		15.880,00 €	10,88 €
2	33.880,00 €	20.000,00 €	Kellerdecke	15.880,00 €	10,88 €
3	29.760,00 €	- €		15.880,00 €	10,88 €
4	45.640,00 €	44.000,00 €	Verglasung	15.880,00 €	10,88 €
5	17.520,00 €	- €		15.880,00 €	10,88 €
6	33.400,00 €	- €		15.880,00 €	10,88 €
7	49.280,00 €	- €		15.880,00 €	10,88 €
8	65.160,00 €	- €		15.880,00 €	10,88 €
9	81.040,00 €	- €		15.880,00 €	10,88 €
10	96.920,00 €	112.800,00 €	WDVS	15.880,00 €	10,88 €
11	- €	- €		15.880,00 €	10,88 €

- Monatliche Einzahlung für eine 80m² Wohnung: 73€

Fraunhofer IBP

Darstellung der Informationen für die Eigentümer

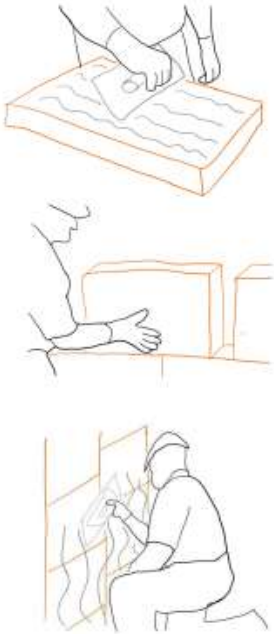
Außenwanddämmung WDVS

Mineralwolle-Dämmplatten
16cm WLG 035
Kalk-Zement Oberputz
Inklusive Gerüstkosten

Kosten: 141.000€

\+
- Große Energieeinsparung
- Vermeidung der meisten Wärmebrücken

−
- Gerüst benötigt
- Neue Attika benötigt



Sanierungsvariante 2 WDVS + Solarthermie

KfW Effizienzhaus 100 — Qp = 58,7W/m²K

Maßnahmen — 377.000€

WDVS Außenwände	141.000€
Erneuerung Attika	9.000€
Erneuerung der Fensterverglasung	55.000€
Dämmung der Kellerdecke	25.000€
Erneuerung der Hauseingangstüren	14.000€
Ersetzen der Glasbausteine durch Fenster	14.000€
Solarthermie 50m²	67.000€
Planung	52.000€

Förderungen — 202.000€

KfW	66.000€
FES München	63.000€
BAFA	5.000€
Smart City	68.000€

Energieeinsparung — 4900€/Jahr
Amortisationszeit — 25 Jahre

Nutzerkomfort
- Steigerung der Behaglichkeit in den Wohnungen durch höhere Oberflächentemperaturen
- Erhöhung der Temperatur im Treppenhaus
- Verschönerung des Erscheinungsbildes der Fassade

Fraunhofer IBP

Conclusion

- The active owners‘ participation from the very beginning of the process is crucial for the success, in order to know the exact needs and expectations

- The dynamic simulation can visualize another aspects of the retrofit and by this help during the decision making

- Alternative financing methods enable the financing without direct payments by the owners are needed

- Cascade retrofit planning enables the proper financial planning for the OC

SMARTER TOGETHER

Project background

- European Union has set ambitious targets for CO_2 reduction
- Also Sofia aims at reducing CO_2 by 20% until 2020*
- The CO_2 source today in focus:

Owner Community Buildings

- In Munich similar target setting, with a specific program to improve energy efficiency of buildings
- Within H2020 Smarter Together the goal is to share experiences with follower cities like Sofia

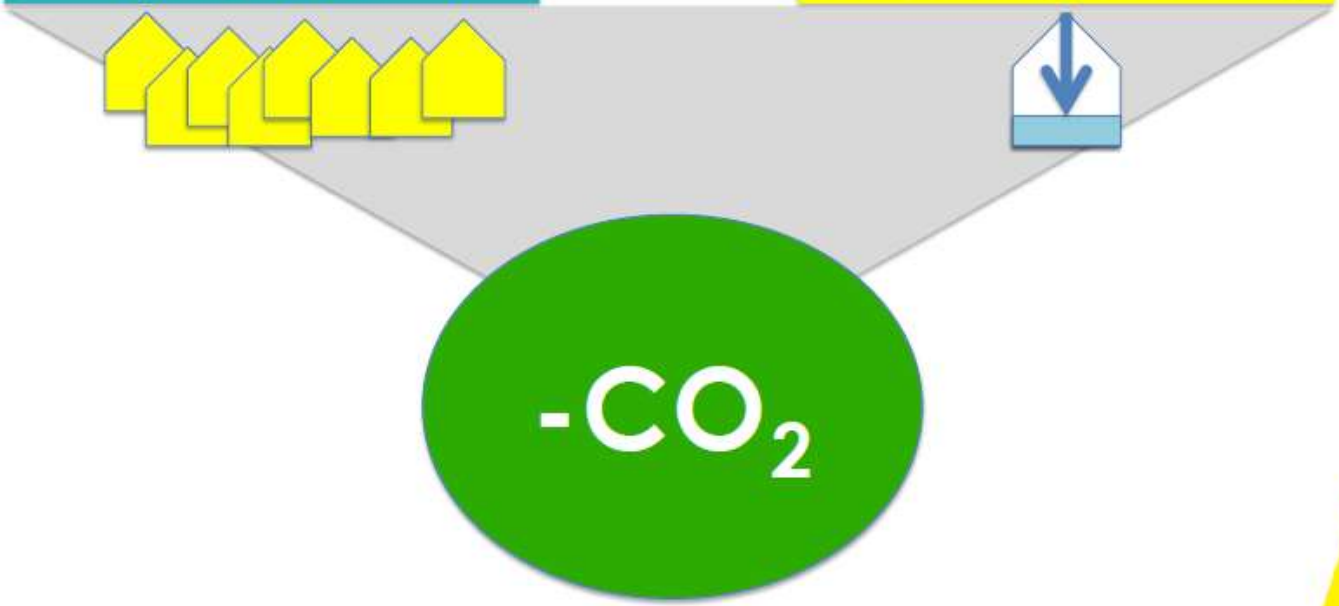
SMARTER TOGETHER

CO_2 Reduction has two levers

Quantity =
Number of buildings improved

X

Quality =
Intensity of energy reduction per building



SMARTER TOGETHER

Munich's Learnings so far

Quantity =
Number of buildings improved

- You need to **inform many** through various channels
- You need to **contact many** in person
- Show them the **advantages** of energetic building retrofit
- **Convince** the decision makers with facts
- Coach and support the process of **decision** making

SMARTER TOGETHER

Munich's Learnings so far

Quality=
Intensity of energy reduction per building

- Select the most **promising** buildings for retrofit based on reference building typology
- Offer a smart set of **technical** measures (e.g. facade, window, roof, cellar, PV, smart metering)
- Support planning and implementation with a **quality** management
- **Monitor** the actual saving effects and adjust early enough

SMARTER TOGETHER

What Munich did so far

- Munich gathered **information** on reference types of buildings in the city
- Munich narrowed down few **specific districts** in which retrofit provides potentially high CO_2 reduction impact
- Munich set up an **organisation** for energy retrofit with own staff („MGS“)
- Munich installed local **contact offices in the districts** to get in contact with citizens and offer information on energy retrofit

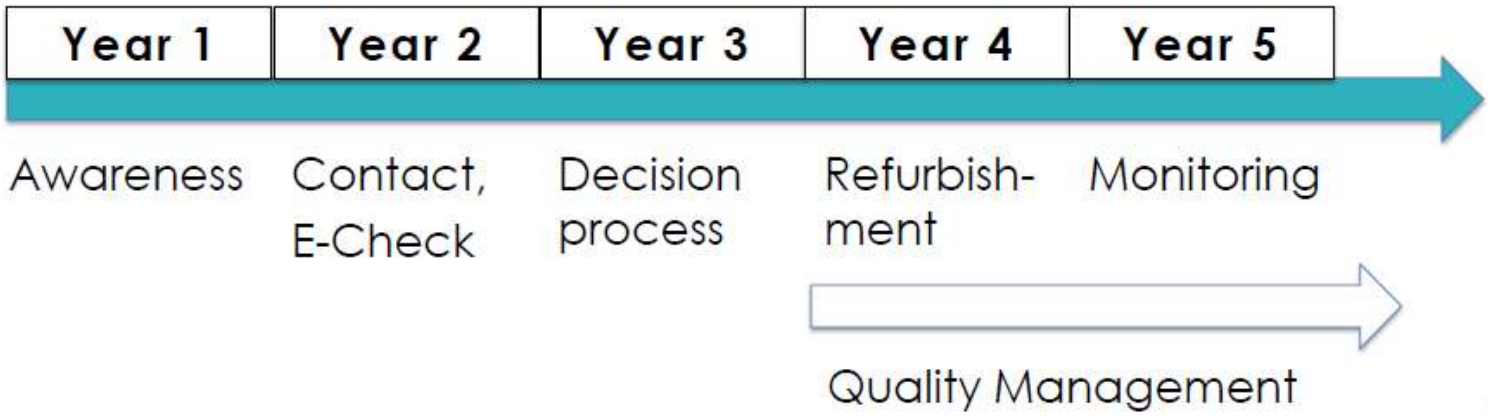
SMARTER TOGETHER

What Smarter Together added to that

- Specific **events** for citizen involvement have been organised to get people's feedback and new insights
- Pulling together a **team of functional experts** to come up with new solution options already in an early stage
  - **Technical** building experts (Energy check)
  - Experts with overview on public **funding** options
  - Experts for calculating **financial** effects (financing volume, risk, payback time)
  - Experts for setting up innovative **financing** options (e.g. crowd funding, energy communities)
- Experience **exchange** with other cities

SMARTER TOGETHER

Decisions on building retrofit take time



Owner communities have slow and tidious decision making processes that must not be underestmated in the timeline

Thus, the invest in the early stages (Awareness, Contact, E-Check, Decision Process) is important and crucial for success

SMARTER TOGETHER

How Smarter Together can support Sofia

1. Develop a strategic roadmap for building efficiency improvements

2. Develop a guideline to optimally allocate public funding and establish a funding policy

3. Support and sparring in setting up local building retrofit coordination entities (similar to MGS)

Examples from Munich

SMARTER TOGETHER München

Providing facts for a solid decision

Challenge in Munich is the **owners structure** of the buildings

Owners corporations (OC) represent an **large number of individuals** (up to 300)

Decisions for energetic upgrade are made by the **OC-assembly**

Energetic upgrades have **10-20 years impact** on cost, ease and comfort

Decisions must be made under **great uncertainty** on future developments

Static calculations based on historic figures give only **few indications**

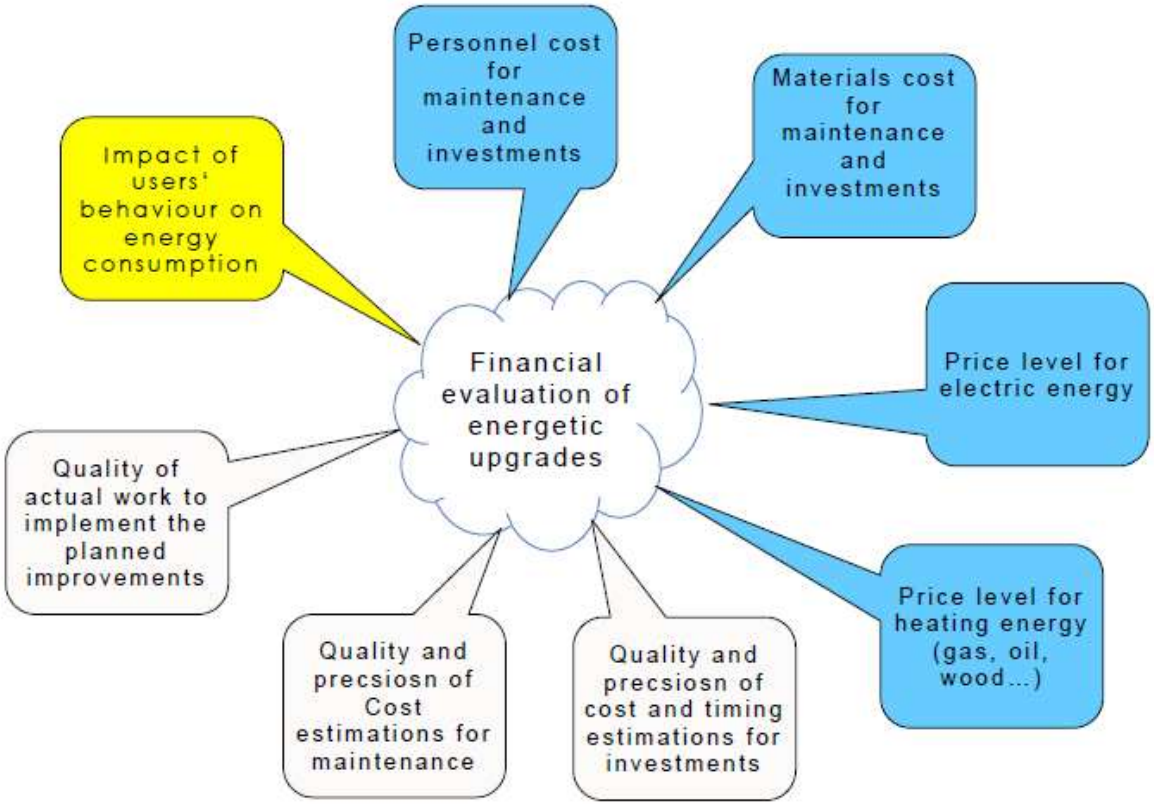
With **Dynamic Decision Management** we have a way to...

- Deal with uncertainty and risk better then before
- Include many influencing factors
- Integrate ranges in which the influencing factors may vary in the future
- Integrate cross-effects of influencing factors

- And finally...
  Find the **most probable corridor** in which the integrated effects of **all factors** will be

SMARTER TOGETHER München

Many influencing factors

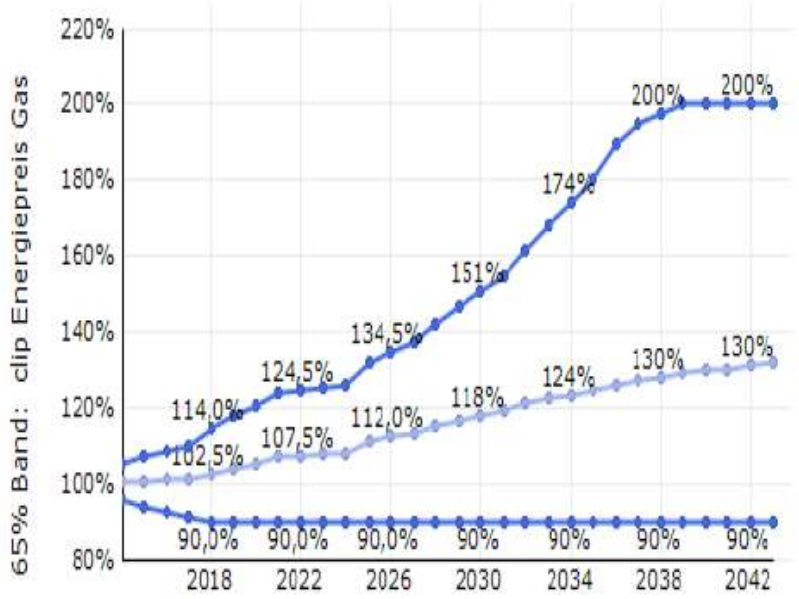


SMARTER TOGETHER München

We don't know... so we put ranges

And agree on assumptions

Example: Gas Price Development



1

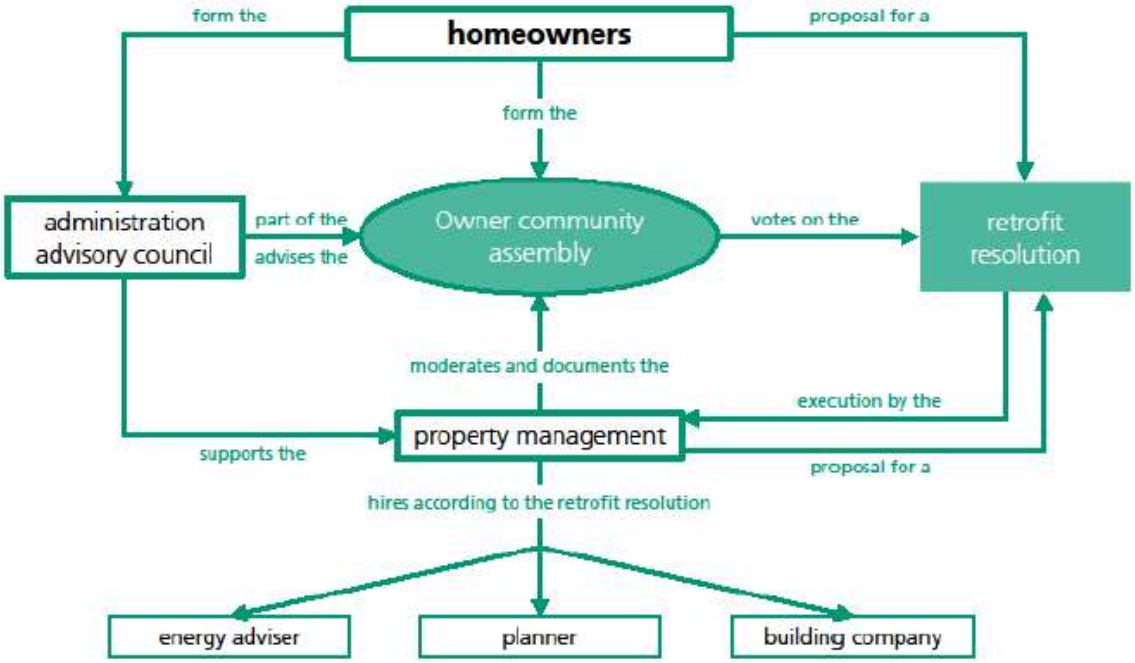
We assume the gas price to rise in average and we thus expect that the actual price in the respective year in the future can vary up to 30% up and down around that average value

2

We also assume, the gas price will never go lower than 90% of today's value and never be higher than twice as high as today

SMARTER TOGETHER München

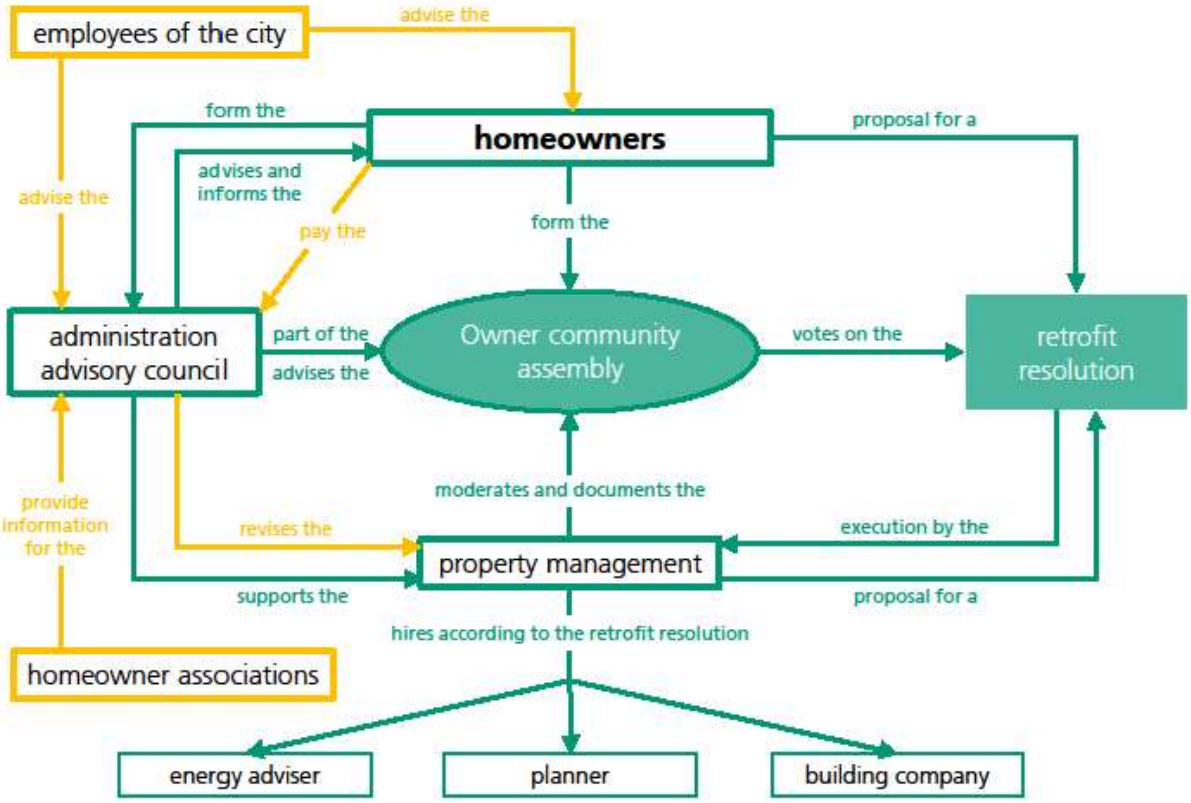
Stakeholders in Energy retrofit in owner communities NOW



Fraunhofer IBP

SMARTER TOGETHER München

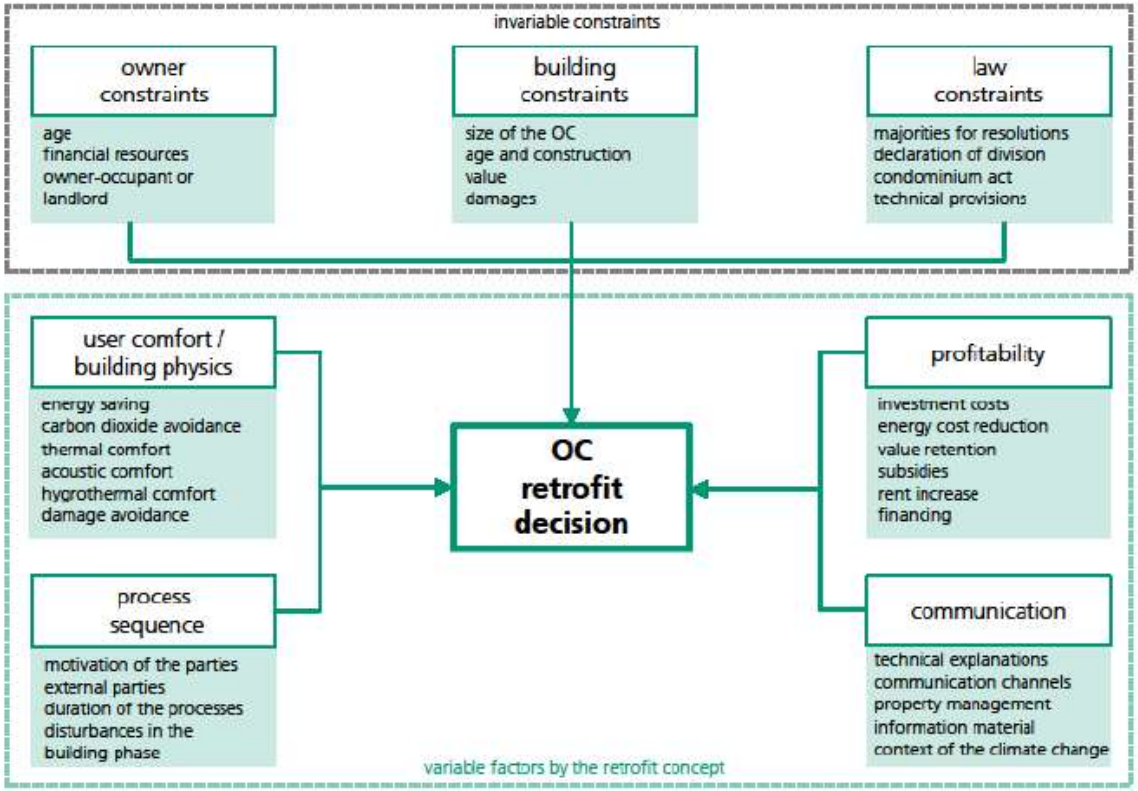
Stakeholders in Energy retrofit in owner communities FUTURE



Fraunhofer IBP

SMARTER TOGETHER München

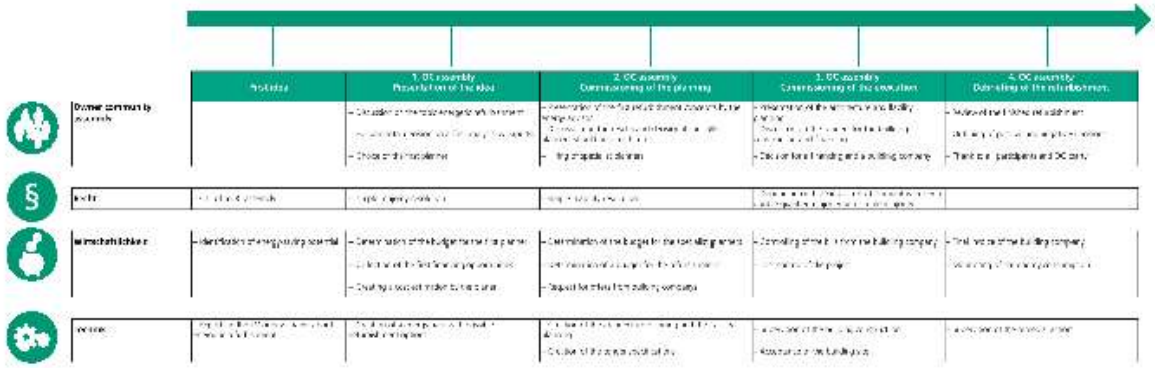
Impact factors decision making process



Fraunhofer IBP

SMARTER TOGETHER
München

Retrofit process

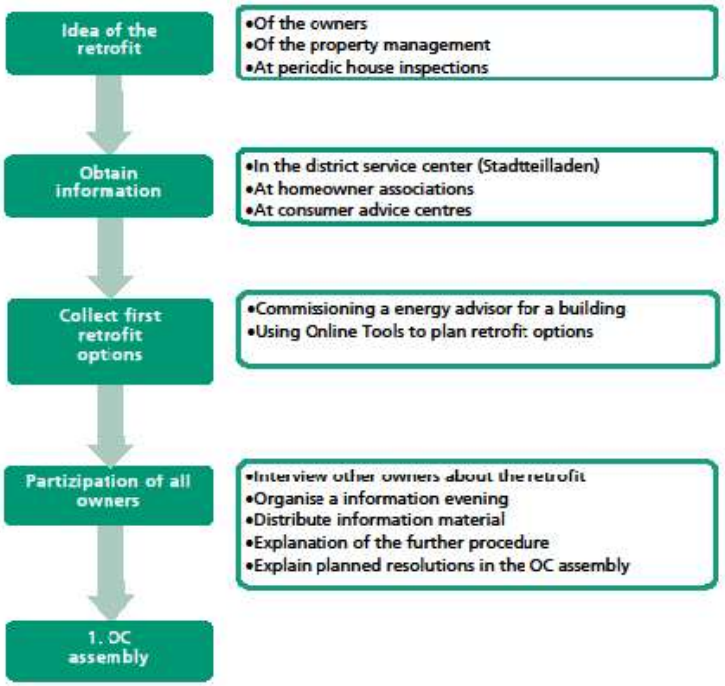


Fraunhofer IBP

SMARTER TOGETHER München

Retrofit process: Pre-phase process

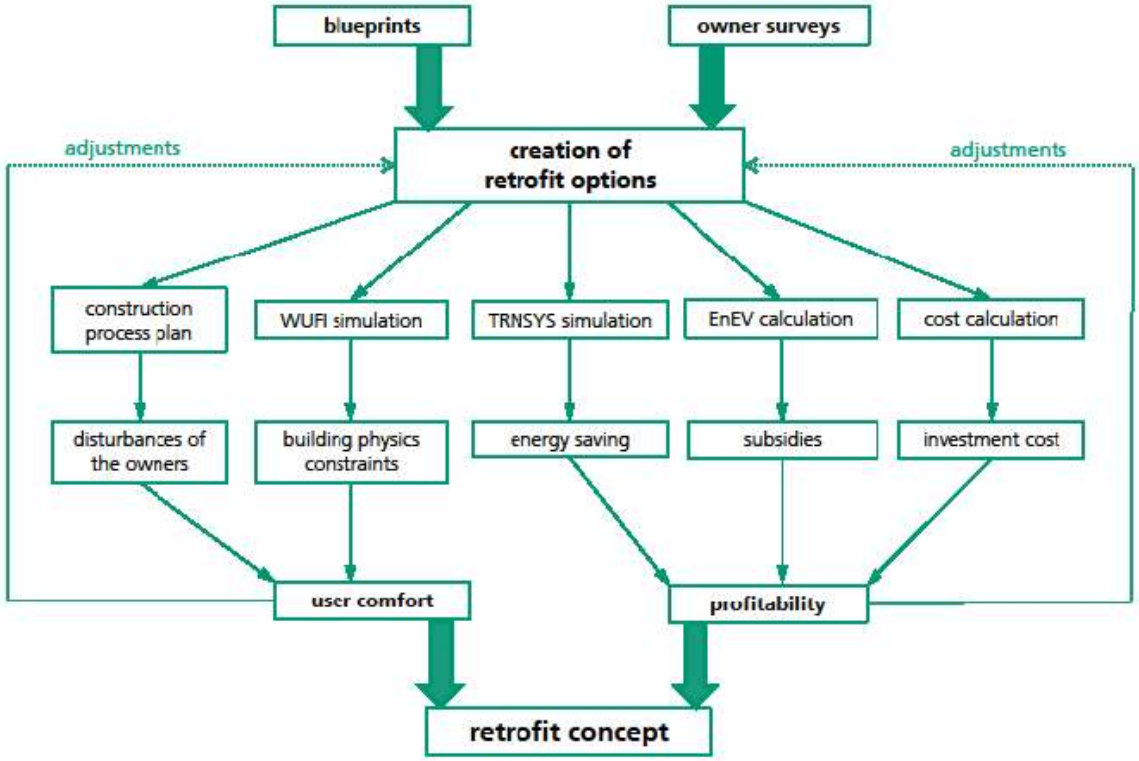
Processes of the impetus phase



Fraunhofer IBP

SMARTER TOGETHER München

Retrofit concept co-creation process



Fraunhofer IBP

SMARTER TOGETHER München

Retrofit roadmap: Case Study Munich

retrofit measure	time	cost
retrofit the heating boiler	As fast as possible	already done
insulate the cellar ceiling	As fast as possible	25.000 €
retrofit the windows or glazing	If a repair is needed	315.000 €
insulate the exterior wall	If a repair of the plaster is needed	141.000 €
cogeneration or solar plant	Depending on energy costs and subsidies	67.000 €
decentralized ventilation units with heat recovery	If the required fresh air flow rate is not provided	84.000 €

Thank you for your attention!

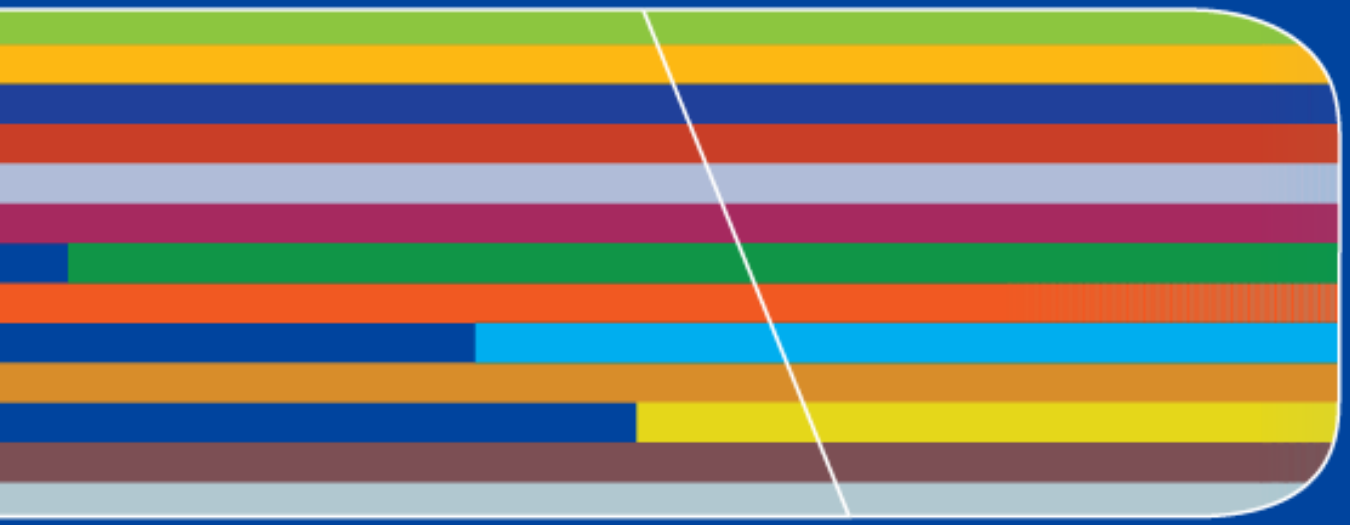
Fraunhofer
IBP

georgi.georgiev@ibp.fraunhofer.de

offen

EIP-SCC
European Innovation Partnership
on Smart Cities and Communities

Joachim Lonien
DIN
Joachim.Lonien@din.de



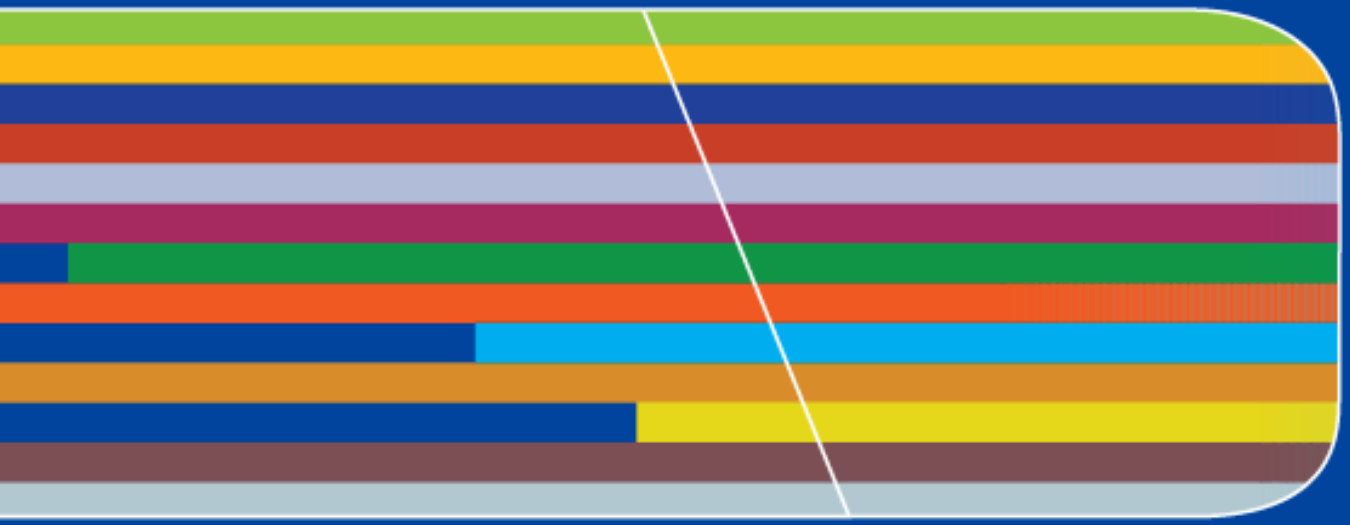
2018-06-27

Kick-off of the **C**EN **W**orkshop **A**greement **CWA** ***Sustainable energy retrofit process management for multi-occupancy residential buildings with owner communities***

Joachim Lonien, DIN
- for Stefanie Müller and
Christian Grunewald (DIN)

Agenda

- Introduction of the **C**EN **W**orkshop **A**greement concept
- Background of the CEN Workshop proposal
- Establishment of the CEN Workshop
- Activities of the CEN-CLC-ETSI Sector Forum on Smart and Sustainable Cities and Communities
- Working on CWA content (interactive session)
- Next steps and closing of meeting



CEN Workshop Agreements

Working rules

European Standardization Organizations (ESOs)

CEN (European Committee for Standardization)

CENELEC (European Committee for Electrotechnical Standardization)

ETSI (European Telecommunications Standards Institute)

About CEN

34 National Standardization bodies

About CEN

- Provides a **platform for stakeholders** to come together and reach **a consensus** at European level
- We help to ensure that the system respects the WTO principles of **transparency, openness, coherence, consensus**
- Support established Technical Bodies in the development of their standardization/pre-standardization deliverables

CEN Deliverables

- ✓ Produced in **Technical Committees** with national delegations:
  - European Standards – EN
  - Technical Specifications - CEN/TS
  - Technical Reports - CEN/TR

- ✓ Produced in **Workshops** with individual interested parties:
  - **CEN Workshop Agreements - CWAs**

CEN Workshop concept

- ✓ Flexible working platform:
  - Light procedures
  - **Direct and voluntary participation of stakeholders**
  - Participants decide on the working arrangements
- ✓ Open to any company or organization:
  - **Inside or outside Europe**
  - Public process
- ✓ Rapid elaboration of **documents**
  - Few physical meetings
  - Work by electronic means encouraged

CEN Workshop Agreement (CWA)

- Final deliverable of the Workshop - **Voluntary application**
- Content: technical specifications, guidance material, best practice, information, etc.
- They can be the basis for an European or international standard at a later stage
- **CEN IPR policy and exploitation rights** are applicable to CWAs (registration form)

Initiators

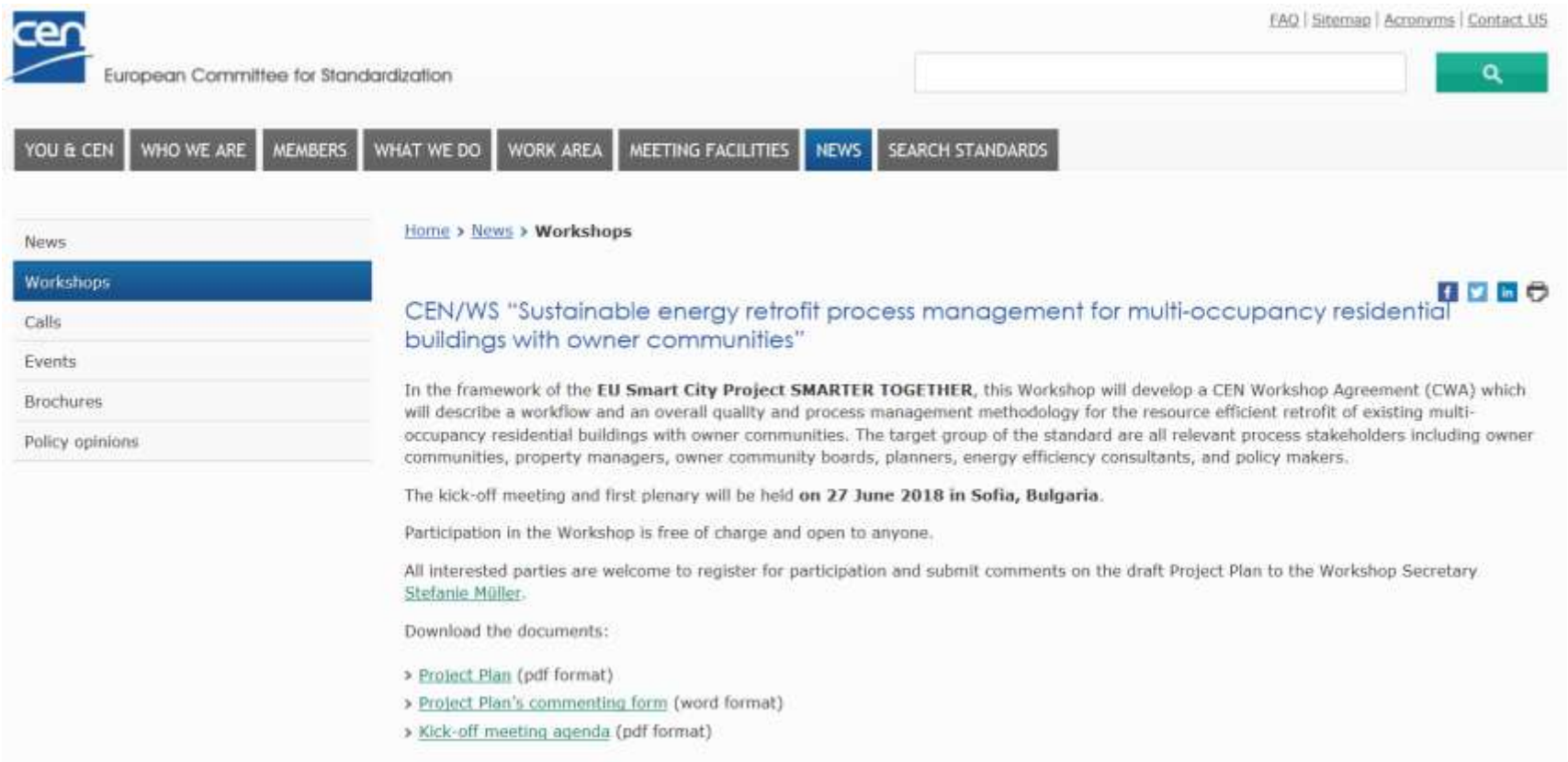
Who are the initiators? Anyone can initiate!

- Industry
- Public authorities
- Professional organisations, Federations
- Research projects
- Academics – Universities, etc.

General process

- Proposal to CCMC
- Announcement on Website with the Project Plan
- KO meeting – approval of the Project Plan
- CWA development
- Possible public consultation
- Consensus on comments and update of CWA
- CWA approval by the WS
- Publication by CCMC

Project plan



European Committee for Standardization

FAQ | Sitemap | Acronyms | Contact US

YOU & CEN | WHO WE ARE | MEMBERS | WHAT WE DO | WORK AREA | MEETING FACILITIES | NEWS | SEARCH STANDARDS

- News
- Workshops
- Calls
- Events
- Brochures
- Policy opinions

Home › News › **Workshops**

CEN/WS "Sustainable energy retrofit process management for multi-occupancy residential buildings with owner communities"

In the framework of the **EU Smart City Project SMARTER TOGETHER**, this Workshop will develop a CEN Workshop Agreement (CWA) which will describe a workflow and an overall quality and process management methodology for the resource efficient retrofit of existing multi-occupancy residential buildings with owner communities. The target group of the standard are all relevant process stakeholders including owner communities, property managers, owner community boards, planners, energy efficiency consultants, and policy makers.

The kick-off meeting and first plenary will be held **on 27 June 2018 in Sofia, Bulgaria**.

Participation in the Workshop is free of charge and open to anyone.

All interested parties are welcome to register for participation and submit comments on the draft Project Plan to the Workshop Secretary Stefanie Müller.

Download the documents:

› Project Plan (pdf format)
› Project Plan's commenting form (word format)
› Kick-off meeting agenda (pdf format)

CEN CENELEC

Development process

Project Plan	Kick-off Meeting	CWA drafting & adoption	Publication of CWA
Describing – Scope – Objectives – Schedule	**Confirming** – Project Plan – Rules of the Workshop – Chairperson – Secretariat	**Consensus Process** – Workshop participants – Public consultation where required	**Validity of 3 years** - Re-confirmation possible only once

Open Consultation Phase

- ✓ **Mandatory if the CWA deals with safety aspects**
- ✓ Highly recommended for all Workshops → increase transparency
- ✓ Draft CWA text posted at CEN website
- ✓ Duration: minimum 60 days

CEN Workshop Agreement

- Can be technical specifications, guidance material, best practice, information, etc.
- The results are purely voluntary in application
- No obligation for CEN Members to withdraw any conflicting national standards
- CWAs are not designed in principle to give ‘presumption of conformity’ to a EU Directive
- However they can be developed in the context of a request for standardization from EC or a Directive

Kick-off meeting

- Invitation of interested stakeholders
- Accept the Business Plan
- Ensure there is sufficient support
  → **no conflicting standards or NWIP**
- Confirm the Chair
- Confirm the financial resources are secured
- Confirm the Secretariat – a CEN Member

Development of the CWA

- Work according to the rules decided by participants during the kick-off meeting
- Ongoing improvement process of the documents
- Public enquiry – not mandatory (but advisable). Needed when Commission funding or safety matters

Workshop Participants

Participation in Kick-off Meeting ≠ Participation in the Workshop

- ✓ **Conditions of participation in Workshop**:
  - Signature of Registration Form
  - Agreement to assign exploitation rights of individual contributions to Workshop deliverables to CEN
  - Registration to Workshop can be done at any time until the end of the drafting phase
- ✓ **Role of Workshop Participants**:
  - Providing comments and input on draft documents
  - Approval of the CEN Workshop Agreement (organisations approving CWA will be listed in WA foreword)

Publication

- Announcement in CEN Members' catalogues
- CEN/CENELEC retains the intellectual and exploitation rights on the CWA
- Promotion in the 34 countries member of CEN/CENELEC
- Companies/organizations endorsing the CWA are listed

CWA and Lifetime

Valid for 3 years, after which the participants are asked to make a choice to:

- reconfirm
- revise
- upgrade into a standard/ technical specification
- withdraw

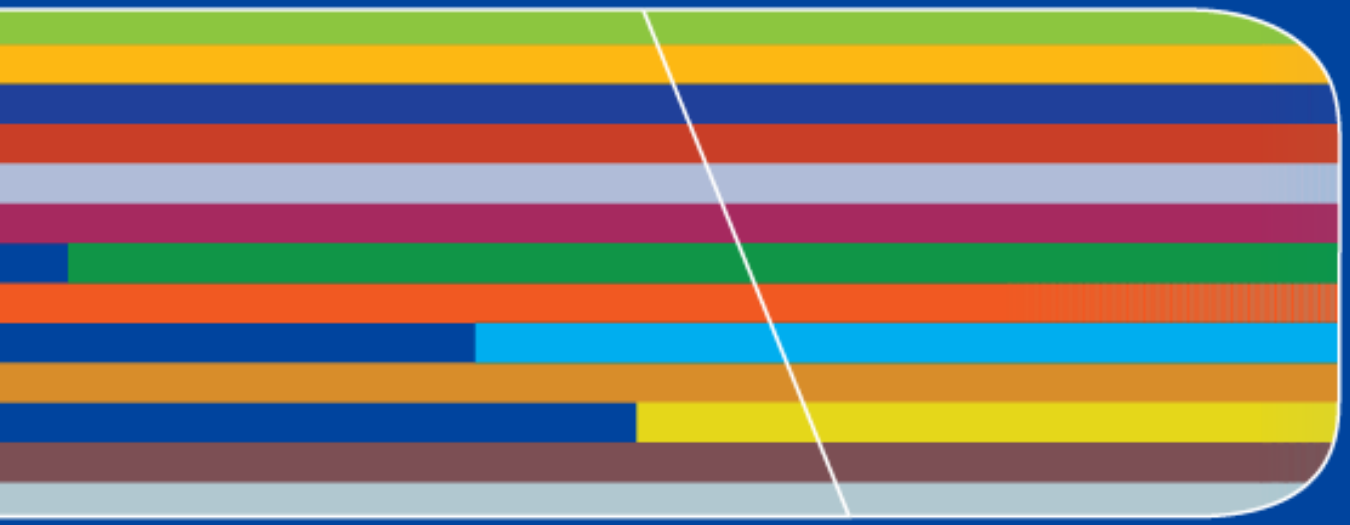
Max. 6 years !

Structure of a CWA

- Foreword
- Introduction
- Scope
- Normative references
- Terms and definitions
- *Requirements and recommendations*
- Informative annex
- Bibliography

Livelink – Electronical committee

- Web-based access
- Documentation of all Workshop related exchanges
- Voting booth
- Discussions
- Task lists
- Access rules
  - Collection of contact details
  - Signing participant registration form, incl. assignment of exploitation rights



Background of the CEN Workshop proposal

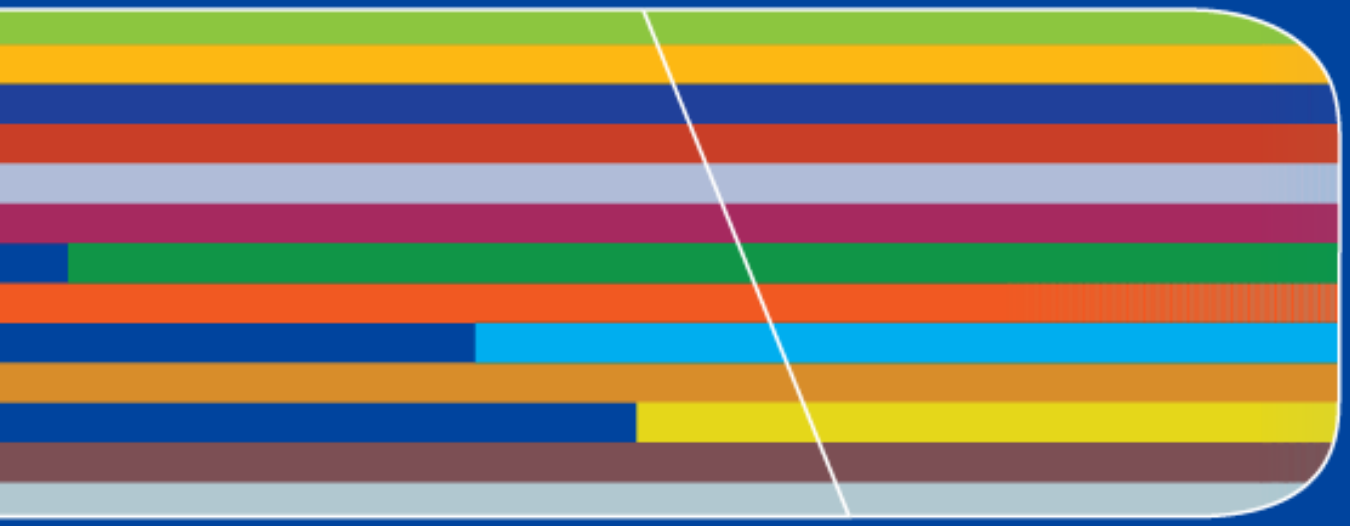
Comments (Germany)

As far as it can be judged from DIN there is **currently no standard** or project in the work program of the relevant TCs for the planned scope of the CWA "Sustainable Energy Retrofit Process Management for Multi-Occupancy Residential Buildings with Owner Communities".

Nevertheless, it has to be checked if the scope of the planned CWA overlaps with a work item with the title "Valuation of Energy Related Investments" which will be eventually taken up into the work program of the CEN/CLC/JTC 14 and if the degree of standardizability of this topic is sufficient.
Remark: If the CWA covers cost calculations which include LED lightning, it has to be taken into account that due to non-visual effects on humans, proper LED lightning is not yet available at the market. This influences the accuracy of the cost calculations.

New Work Item Proposal at CEN

"This document provides a description on how to gather, calculate, evaluate and document information in order to create solid business cases for industrial, governmental or private energy related investments (ERIs). […] Intended is that this standard meets the needs of all protagonists of an ERI."



Establishment of each CEN Workshop

Workshop Chairperson

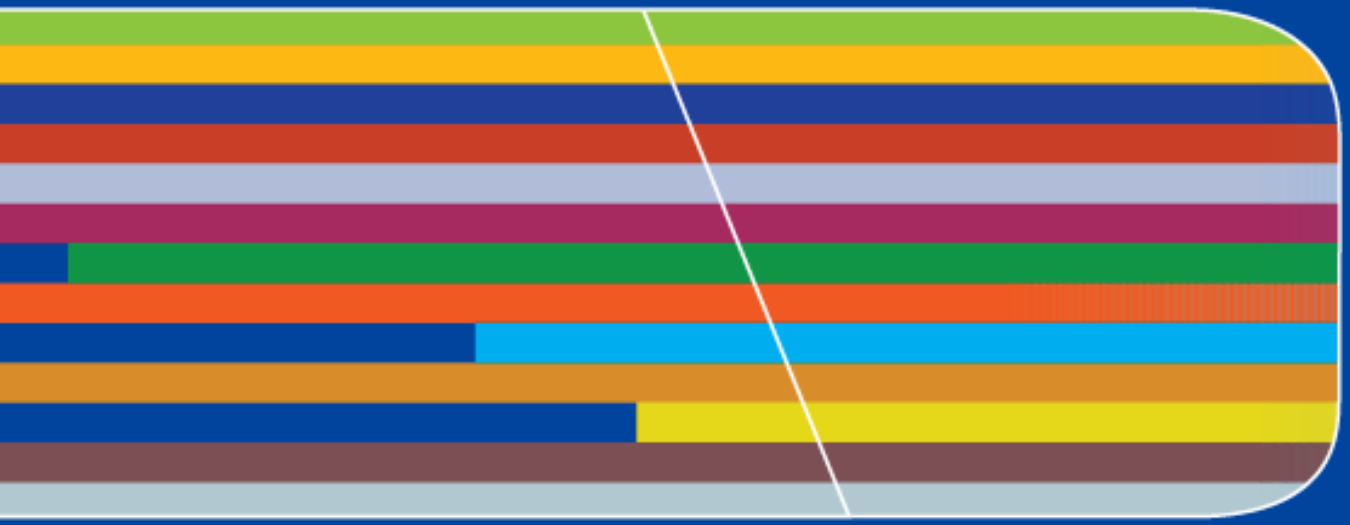
- Presides at Workshop plenary meetings
- Ensures Workshop delivers the agreement in line with its Project Plan
- Manages the **consensus building process**
  - Decides when the Workshop participants have reached agreement on the final CWA, on the basis of the comments received
- Interface with CEN-CENELEC regarding strategic directions, problems arising, external relationships, etc.
- Ensures due information exchange with the Workshop Secretariat

Workshop Secretary

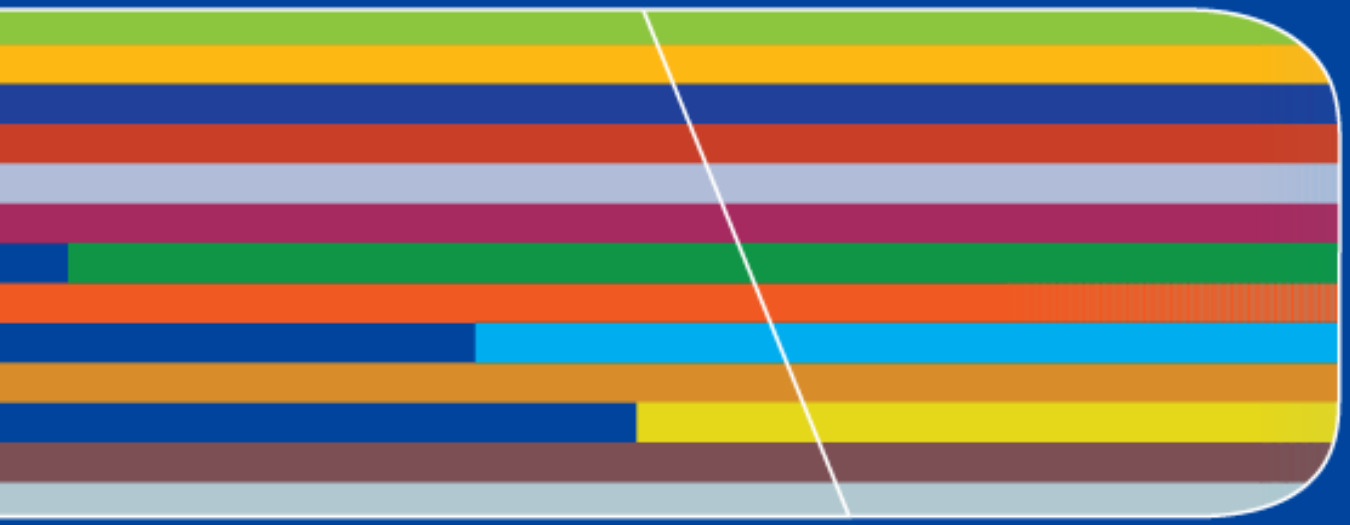
- Formally register Workshop participants and maintain record of participating organizations and individuals
- Offer infrastructure and manage documents and their distribution through the electronic platform
- Prepare agenda and distribute information on meetings and meeting minutes/follow up actions
- Initiate and manage CWA approval process upon decision by the Chairperson
- Advise on CEN rules and bring any major problems encountered (if any) in the development of the CWA to the attention of CCMC

Establishment of Workshop

- Appointment of Chairman
- Appointment of Vice Chair
- Confirm the Workshop Secretariat
- Discussion of the Project Plan
- Approval of the Project Plan



Discussions within the CEN Workshop



Next steps and closing of meeting

Summary and next steps

- Short summary of discussions
- Organization of the further work
- Planning of the meetings, follow-up actions
- Any other business
- Closure of meeting

Next steps

- Include session outcomes to an initial draft
- 1st Web conference
- 2nd Physical meeting
- 2nd web conference
- Draft CWA by
- Web conference / physical meeting to finalize CWA in December (?)

Thank you for your attention!

Your project managers:

René Lindner
Senior Project Manager
rene.lindner@din.de

Christian Grunewald
Junior Project Manager
Christian.Grunewald@din.de

www.din.de
www.cen.eu
www.cenelec.eu

CEN-CENELEC Guide 29 – Workshop Agreements : 2014

EIP-SCC
European Innovation Partnership
on Smart Cities and Communities

Bernard Gindroz
CEN-CENELEC
gindrozb@gmail.com

Standardization work in support of Smart & Sustainable Cities

Dr. Bernard GINDROZ

Chair ISO TC 268 *« Sustainable Development in Communities »*

Chair CEN/CENELEC/ETSI *SF Smart & Sustainable Cities and Communities*

Smart and Sustainable Cities developments

Complex Challenges but Great Opportunities → **Long term vision and commitment**
→ **Holistic approach, priorities**
→ **Integrated planning,**
→ **Citizens' engagement**
→ **Culture of results**

Standardization from best practices and innovative models/partnership in support of:

- *Replication*
- *Business models*
- *Dissemination*

Smart and Sustainable Cities developments

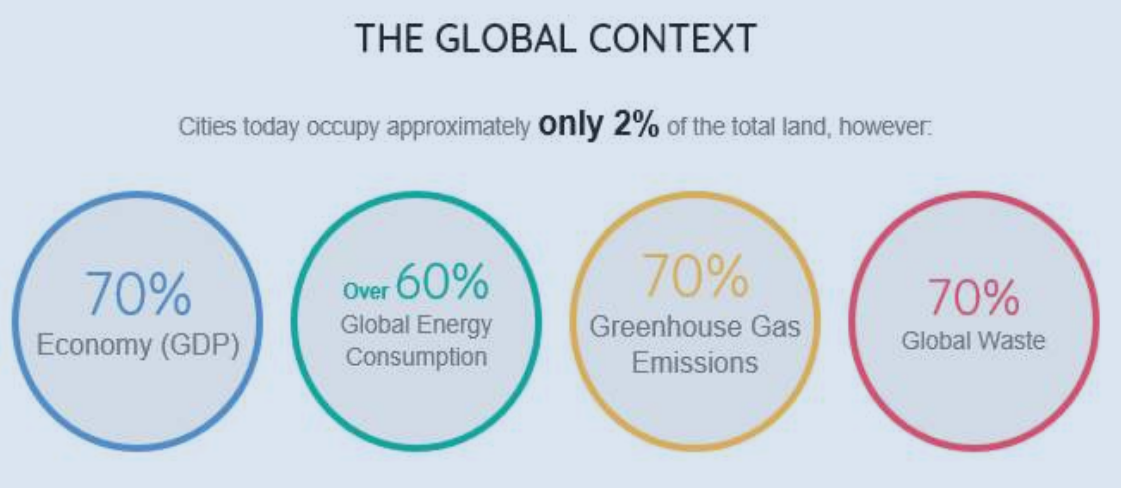
Need for:

- **Appropriate legislative and RDI frameworks**
- **Support to pilot and demo for replication and scaling-up**
- **National engagement**
- **New models of Partnership**

- Standardization to help harmonization and de-risk decision making and investment

Context & Challenges faced by cities

- By 2050, the population is forecast to be just under 10 billion people, with about **80%** of that population expected to be **urbanized**.



- The **challenge** that every city is facing is how to best deliver the **resources and services** needed to ensure a **thriving population** and **good economic performance**.

Sustainable Development Goals

Common challenges and engagement

Committed by all Member States and EFTA

and the European Commission' strategies

ISO Smart and Sustainable Cities developments

Smart Cities require a holistic approach for sustainable development…

- Challenges faced by Cities are very complex and multi dimensional, multisectorial.
- Big challenge is to develop comprehensive policies, consistently applied over different municipal areas.
- **A focus on citizens with new governance models**
- 5 major areas of priorities with dedicated KPIs:
  1. **People**
  2. **Planet**
  3. **Prosperity**
  4. **Governance**
  5. **Replication/scaling-up-Dissemination**

Smart and Sustainable Cities developments

Strong political engagement

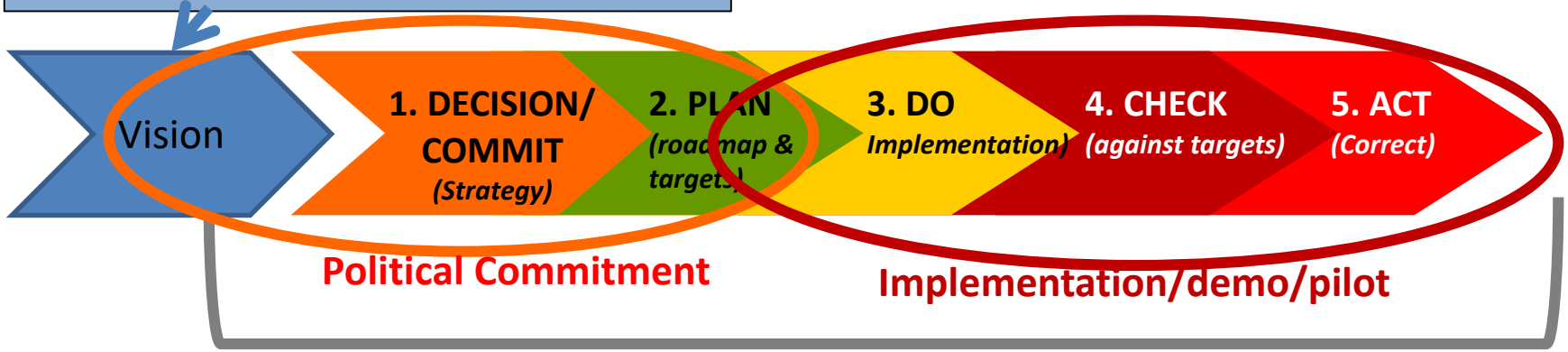
- Vision (incl. results related)
- Commitment/Decision
- Strategy with objectives
- Sectorial/area Roadmaps with targets
- **Implementation and culture of results**
  - *Measure progress and monitor*
  - *Evaluate against planned targets*
  - *Improve to meet the objectives*
  - *Communication & reporting*

Implementation-Pilot-Demo

ISO TC 268 Sustainable cities and communities

Based on local context with long term targets, considering :

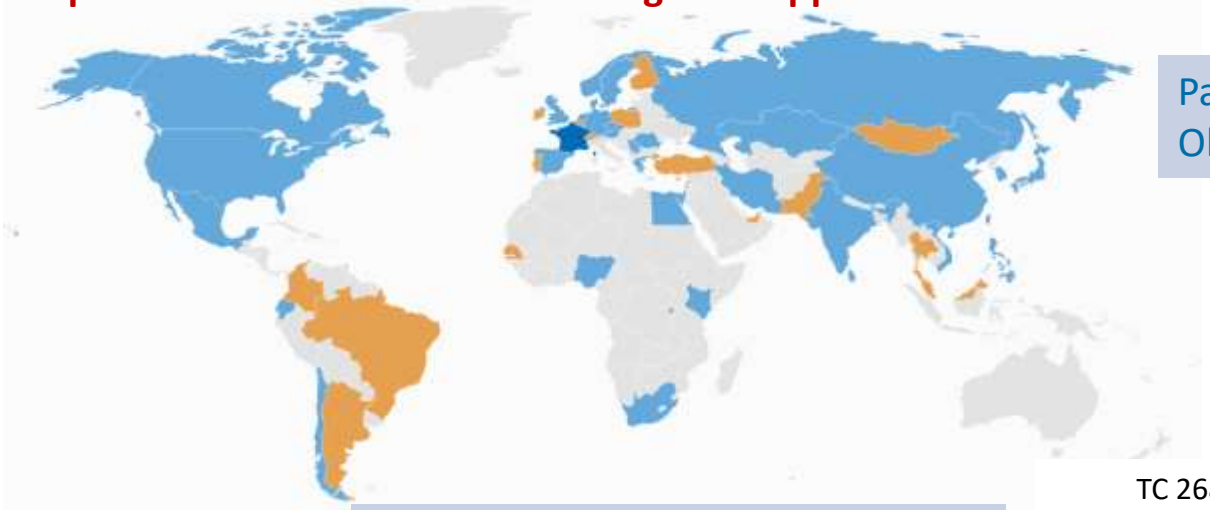
- Quality of life for all citizens
- Economic developement
- Environmental & Climate change issues



Quality Management throughout the whole process

ISO TC 268 Sustainable cities and communities

The proposed series of International Standards will encourage the **development and implementation of holistic and integrated approaches** to sustainable development & sustainability.

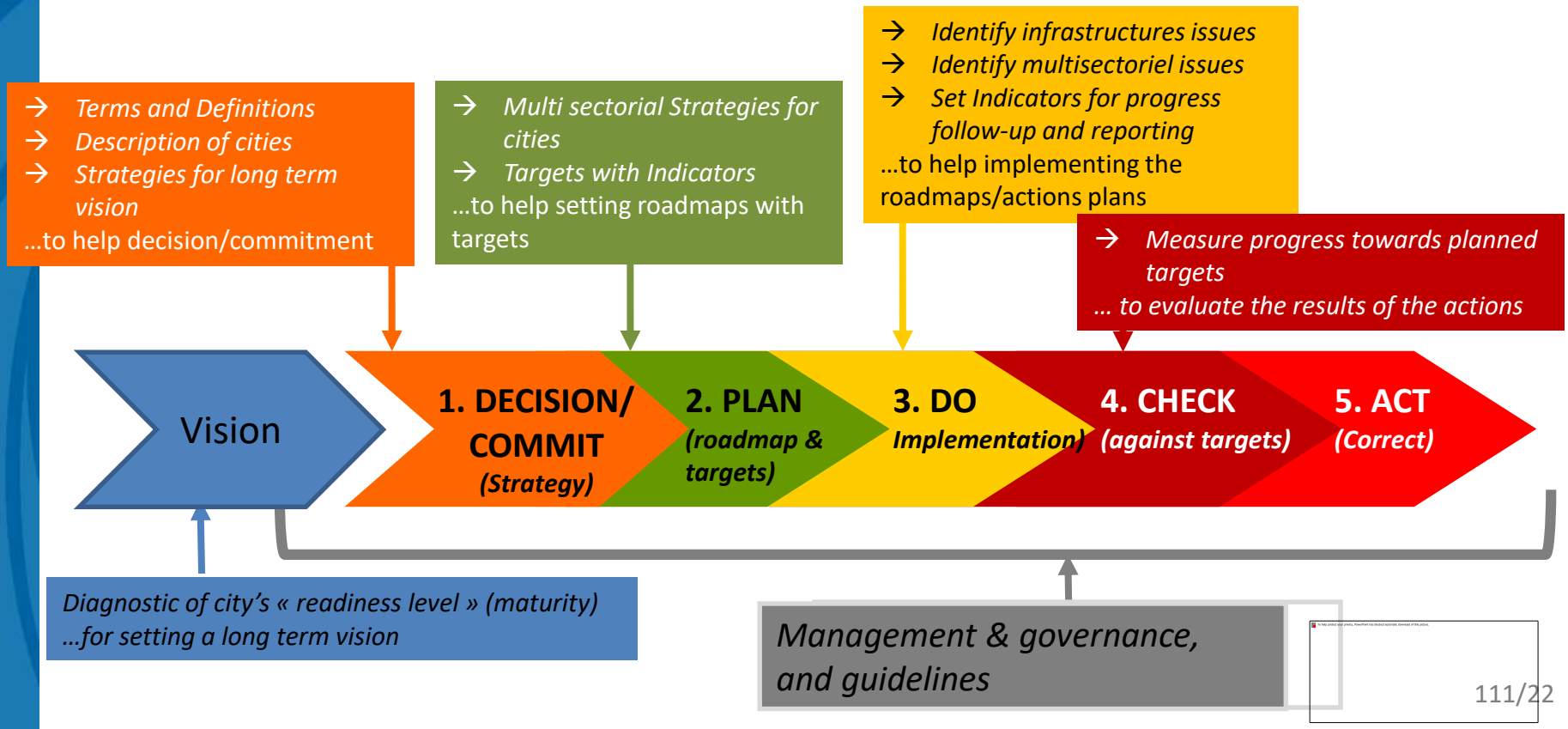


Participating countries: **36**
Observing countries: **22**

TC 268 contributes to the **UN Sustainable Development Goals** through its standardization work.

Secretariat: AFNOR, Mr. Etienne Cailleau
Chairman: Dr. Bernard Gindroz
Creation date: 2012

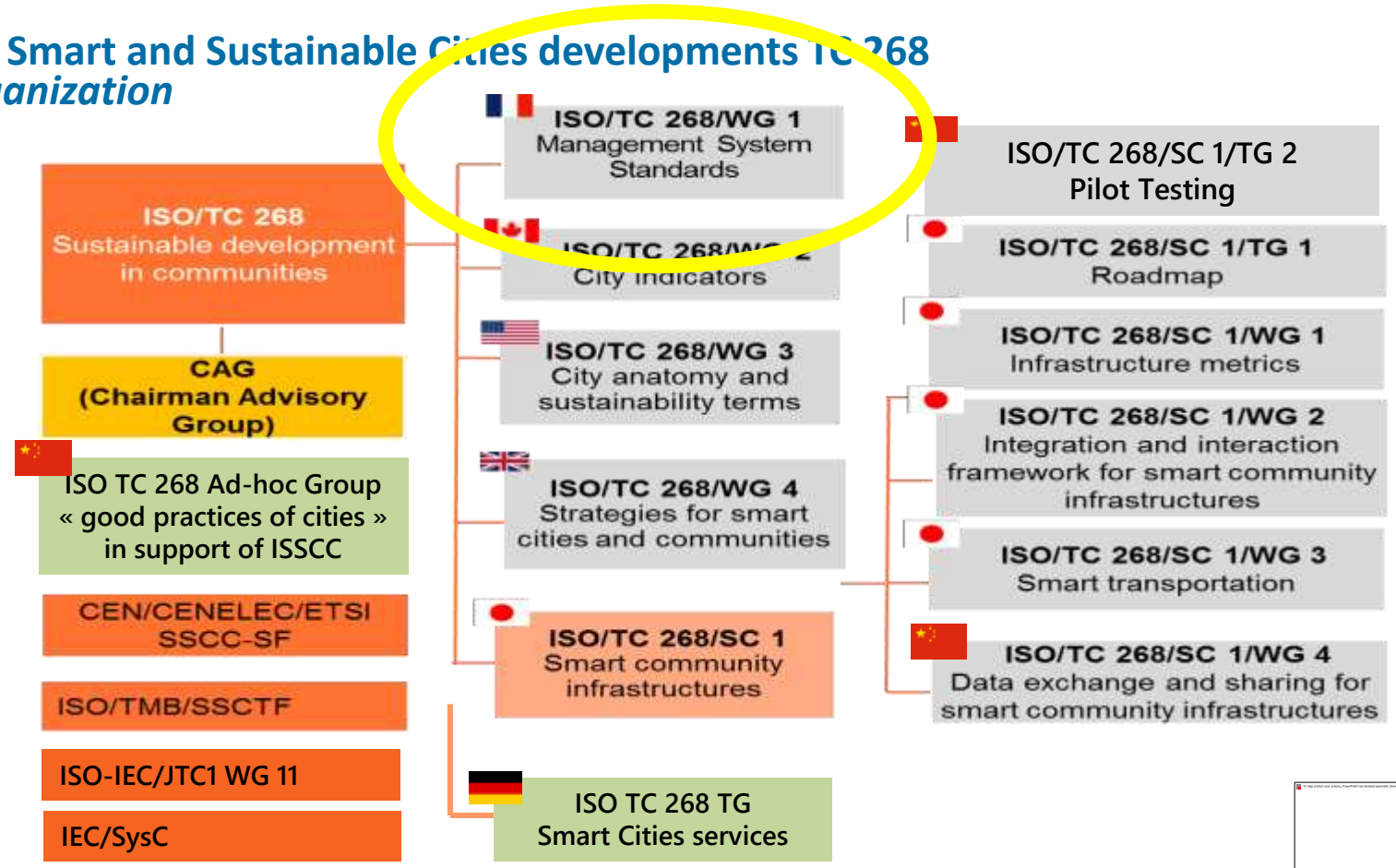
ISO TC 268 Sustainable cities and communities



BMGI Consulting

ISO Smart and Sustainable Cities developments TC 268

Organization



ISO Smart and Sustainable Cities developments TC 268
Organization – suggestion for specific contexts

ISO/TC 268
Sustainable Development
in cities

ISO 37101 standards
ISO 37104 guidelines

ISO/TC 268 WG 1
Management System
Standards

Specific application guidelines

- *Small & Medium size cities*
- *Business Districts*
- *Airports/harbours*
- *Other…..*

Application guidelines for the implementation ISO 37101

- *In specific areas and/or sectors*
- *With set of relevant related KPIs*

At European Level

EUROPEAN STANDARDIZATION ORGANIZATIONS

Sector Forum on Smart and Sustainable Cities and Communities (SF-SSCC)

Dr. Bernard GINDROZ - Chairman

SERVING THE CITIES' NEEDS

Standardization activities in support of smart and sustainable cities and communities

CEN/CENELEC/ETSI Sector Forum SSCC

- *Sector Forum **created in 2017***
- *As a horizontal **strategic and advisory body** on smart & sustainable cities and communities*
- *2 plenary sessions per year*
- ***1 annual seminar***
- *Permanent representation in the European Innovative Partnership initiative from the European Commission (Smart Cities and Communities – **EIP SCC** -)*
- *Permanent representation of **EIP AHA** through AGE Platform*
- *Permanent participation of the **European Commission***

CEN/CENELEC/ETSI Sector Forum SSCC

- *provide a **platform for exchange** of information **between cities** and **all concerned stakeholders**, including **citizens**; **national contexts & local org***
- *provide **support and guidance** to the relevant standardization technical bodies, essentially on horizontal or cross-sectorial matters;*
- ***coordinate and advise** on standardization activities relevant to the cities and the sector, **in close relation with cities and communities, EU legislative** and **RD&I** frameworks for complementarity*
- *consider where **further standardization work** is needed within the sector.*

CEN/CENELEC/ETSI Sector Forum SSCC

- ***Collect and coordinate expectations*** *expressed in the* ***EIP SCC*** *and* ***EIP AHA*** *by smart and sustainable cities related and relevant* ***stakeholders*** *and* ***inform*** *them about on-going and new standardization development*

- *Motivate* ***cooperation/partnership***, ***replication*** *and* ***scaling-up***
- *Share* ***national views and position*** *about international standardization development (ISO, IEC, ITU) in support of the cities and major commitment (such as UN SDGs)*

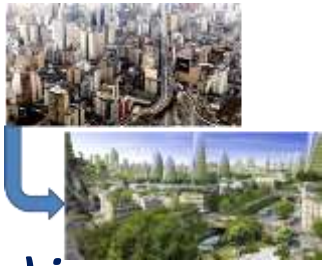
- *Make recommendation about* ***adoption of international standards*** *(ISO, IEC, ITU) at European level*

CEN CENELEC ETSI
EUROPEAN STANDARDIZATION ORGANIZATIONS

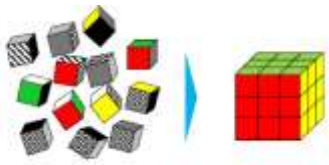
CEN/CENELEC/ETSI Sector Forum SSCC

Annual event

- *First one last October 19th in Brussels, co-organized by European Commission and CEN/CENELEC/ETSI - about 150 participants*
- *Share **challenges and major issues faced by cities** and communities*
- *Collect expression of **needs from cities and communities***
- *Identify **topics** where **improvement** are needed, as well as **standardization development** is relevant*



→ CEN/CENELEC/ETSI SF SSCC as Single Entry point (Reference) in standardization for Smart & Sustainable Cities and Communities in Europe



CEN/CENELEC/ETSI Sector Forum SSCC

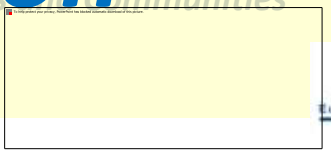
On going work-*in line with outcomes from the annual event*

- ***Mapping challenges*** *faced by cities for smart and sustainble development*
- ***Mapping*** *existing* ***initiatives & standardization*** *development*

- ***Exchanges with Cities' reps*** *(i.e. Cities, national associations of cities, local/Regiona/National/EU authorities) and* ***collecting*** *expression of needs for standardization development*
- *Integration of* ***societal priorities*** *in SSCC consideration*
- *Integration of* ***citizens' needs – co-creation***

Conclusions and perspectives

- Smart & Sustainable development: a real challenge for cities
- A need for holistic approach & New governance models
- A culture of results with permanent improvement approach
- A culture of communication and reporting to keep collective engagement
- A need for a Global Quality Management Framework
  - Cities' and citizens' representatives in mirror committees
- Standards are key enablers and
- Practical implementation guidelines necessary to successful implementation
  - Active participation of cities in national mirror committees
  - Club of Cities implementing standards with a management system approach (ISO 37101)
  - CEN/CENELEC/ETSI Section Path Smart and Sustainable Cities and Communities
  - → Please feel free to contribute and participate



Questions & Answers

Dr. Bernard GINDROZ

gindrozb@bmgi-consulting.com
Phone: +33 623 22 19 37

EIP-SCC
European Innovation Partnership on Smart Cities and Communities

Judith Borsboom-van Beurden
NTNU
judith.borsboom@ntnu.no

European framework of vertical and horizontal actions

EIP-SCC
European Innovation Partnership on Smart Cities and Communities

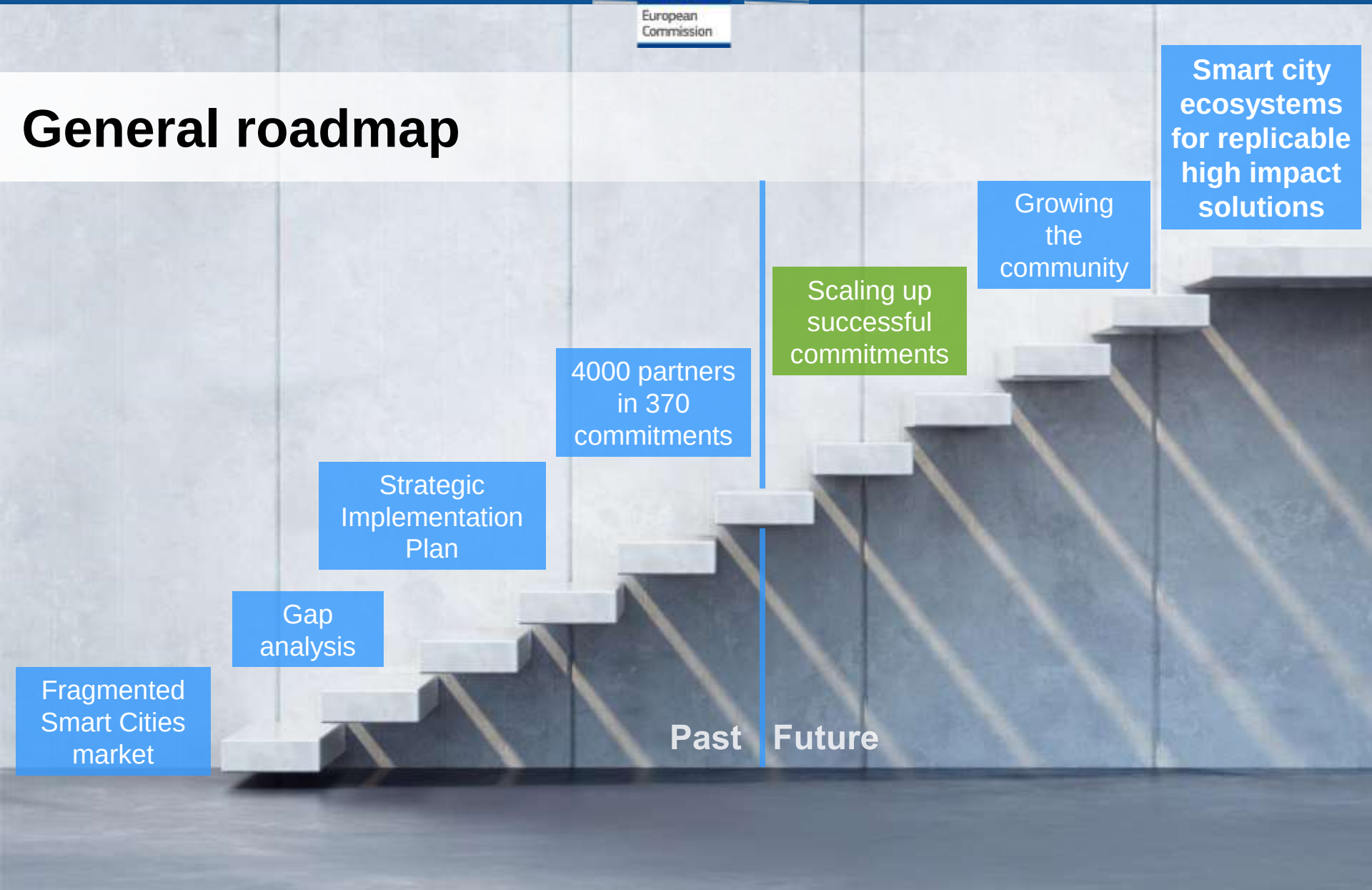
European Innovation Partnership Smart Cities and Communities

6 Action Clusters

4600 partners,
370 commitments,
31 countries.

Integrated Planning
Policy & Regulation

General roadmap



Why is integrated planning important?

In day-to-day policy and decision-making by city administrations and urban stakeholders, coordination-related issues need to be addressed for successful implementation:

- to develop a holistic perspective on low energy neighbourhoods, integrated infrastructures, clean urban mobility and ICT – district level more than collection of buildings
- to frame the impact of short term actions within a longer time horizon and long term goals and to measure progress – choose solutions with best value for money and prevent “lock-ins”
- to organise cross-domain collaboration during preparation and implementation of plans – prevent delay of implementation due to siloes
- to enable governance of co-design and co-creation processes with a wide variety of urban stakeholders who are often interdependent upon each other for results – ensure collaboration of stakeholders and co-financers
- to mobilise capital from different sources to finance projects at an early stage – prevent cancellation of plans due to lack of finance
- to accelerate the impact of smart city projects towards urban transition – go beyond urban accupuncture

EIP-SCC
European Innovation Partnership on Smart Cities and Communities

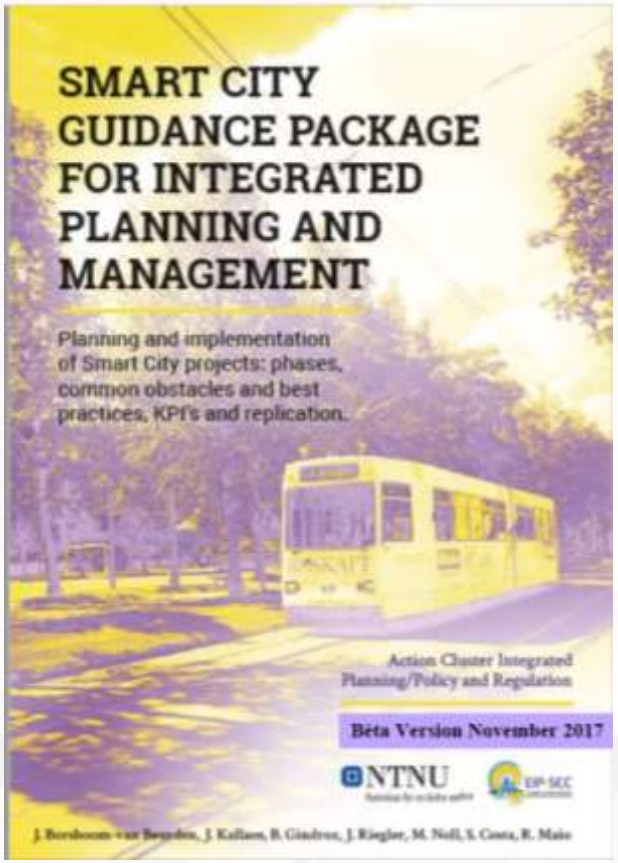
Common achievement of the action cluster

Co-create a **Smart City Guidance Package (SCGP)**, which

- is written in simple straight-forward language
- bundles experiences of cities
- helps other cities in avoiding common pitfalls, and in implementing their plans
- will eventually be a living document.

Publication at event in Autumn 2018 (150 pages).

NTNU is leading this activity supported by the whole Action Cluster.



EIP-SCC
European Innovation Partnership on Smart Cities and Communities

For who? SCGP target audience

Type of stakeholder	*Who specifically*	*Use of SCGP*
European cities and their partners - preparing the next generation of implemented smart city projects		
Follower cities, who have already built the competences and need to secure financing. They are the ideal partners to kick-off a pipeline of projects	Political level local government	
	Politicians and administration local government: mayor, alderman, city council	Provide general information about process of smart city strategy preparation and implementation of plans, get everybody at level playing field. How to track progress and measuring impact. Help anchoring political commitment. Give ideas about how to organise the last mile to the bank. Show general approach to frame short term actions in long term goals (temporal coordination)
	Supporting staff as strategists and advisors	Show how to develop strategies and plans in an integrated, well-coordinated way, fitting in cities' overall aims. Provide information on financial instruments and stakeholder engagement. Ideas for urban transition management
	Operational level local government:	
	Directors of unit	Pave the road for realising specific project pipelines
	Technical staff	Raise awareness of context for planning and implementing technical measures
	Practitioners	References to specific methods and solutions, as well as obstacles and barriers
	Project managers of Smart City strategies, plans and projects	Educate project managers, who usually have a background in traditional project management which does not equip them fully for smart city projects. Get everybody at level playing field: different backgrounds of project managers and staff in the follower cities, who come from different sectors as lighting, facility management, construction, real estate. SCGP can facilitate transfer of knowledge to follower cities by showing how to do integrated planning and implementation, and find a way to overcome often occurring difficulties. Information about problems and failures is as important as on best practices. Provide also basic information on other solutions than those tested in the lighthouse projects. Help developing the project further by showing the different phases and components.

	Other local authorities e.g. water boards	Get everybody at level playing field in terms of understanding
Private or public partners involved as key players in preparation and implementation of a smart city plan, partners of cities interested in developing future smart city plans	Owners and operators of transport and energy network operators, energy and transport providers, utilities network operators	Inform and involve public administration managers, such as energy providers, transport, etc. who are often responsible above the city scale, at regional level, for instance an energy grid manager, or partners providing energy
	Owners of infrastructures, buildings and land	Get everybody at level playing field in terms of understanding. Provide information about methods for co-design and co-creation, and financial instruments
	Housing associations, real estate developers	Inform about planning and implementation of technical solutions, engagement of end users as tenants or buyers and financial instruments.
Providers of technical solutions	Building and construction industry, ICT	Inform about possible coordination issues during integrated planning and implementation around technical solutions, and inform about engagement of stakeholders and end users
Consultancy and engineering	Advisors, architects, consultants, engineering	Provide general information about process of smart city strategy preparation and implementation of plans. Inform about technical and spatial coordination issues during integrated planning and implementation of technical solutions
Research and innovation partners	Research and Technology organisations, Universities	Provide general information about process of smart city strategy preparation and implementation of plans, as contextual information for methods and technologies.
(End)-users and owners of buildings and services	NGO's Local businesses Citizens, tenants Interested citizens and local businesses Bottom-up initiatives	Find examples for stakeholder involvement through co-design and co-creation. They are the end-users ultimately, possibly also co-creators. How to develop a common operational picture with tenants and owners of buildings
Further existing, expanding projects, like FP7, EU Urban Agenda projects		

Collaborative development: cities, businesses, research

Input from workshops with commitments

Desk Research H2020 SCC-01

Project information, SCIS, European Energy Award

Interviews lighthouse & followers

Feedback & improvement

Description and validation of:

- Needs
- Experiences
- Best practices
- Failures

EIP-SCC
European Innovation Partnership on Smart Cities and Communities

What? Smart cities guidance package content

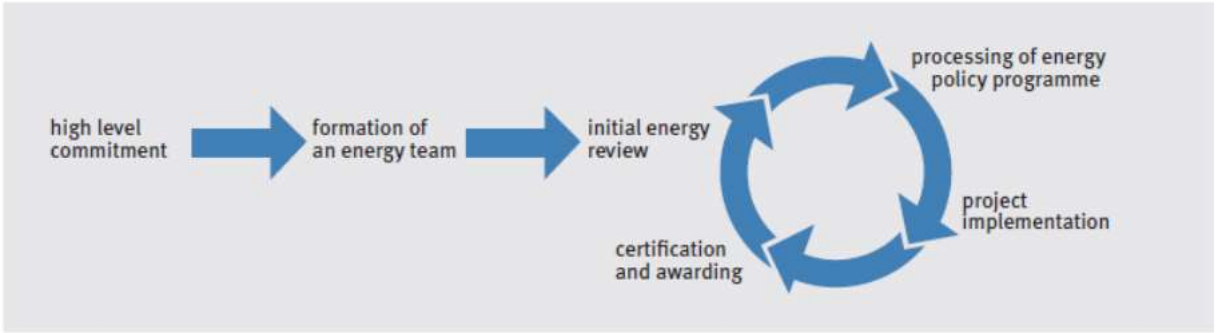
Goals: to serve as an inspirational document looking at integrated planning and management of smart city projects:

- **What** is integrated planning and management of smart city projects
- **How** to develop a smart city strategy and who to involve
- **Which** barriers can you expect and how to deal with them
- **Which** coordination tasks can be expected and how to deal with them
- **Where** can you find information on financial instruments
- **How** to engage stakeholders and keep them engaged during different phases of implementation
- **How** can KPI's and tools help to evaluate alternatives and track progress
- **Which** actions can help to accelerate the impact towards an urban transition

EIP-SCC
European Innovation Partnership on Smart Cities and Communities

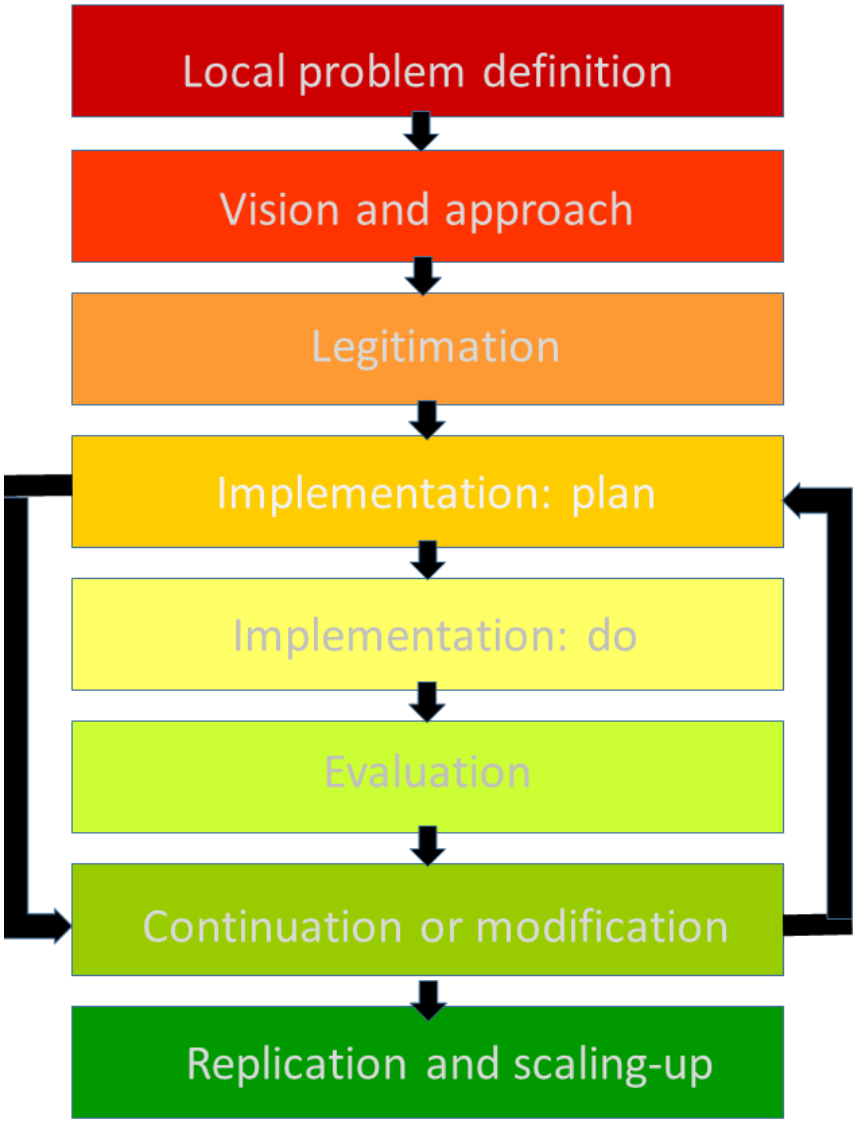
Based on methodology European Energy Award

THE STEP-BY-STEP PROCESS



EIP-SCC
European Innovation Partnership on Smart Cities and Communities

A smart and sustainable cities roadmap for integrated planning and management of smart city projects



Stage 1: Local problem definition

Question: Which pressing problems do we want to address and how do we understand them?

Tools: direct consul-tations, SWOT analysis, peer review, round tables, brain-storm, scenario planning, foresight studies, mindmaps

Step 1: consultation of relevant internal and external stakeholders

Step 2: collect facts and figures, compilation outlooks and studies

Step 3: brainstorm on nature of the problem

Step 4: exploration of possible approaches and solutions

Stan-dards: ISO 18091

Output: (policy) agenda, first ideas on possible solutions

Example of obstacle and solutions

Smart city projects are often managed by vertically structured departments (silos) in the local government. Other project stakeholders, including local businesses, solution providers, and universities, are often siloed as well. Since no single department has the full mandate (or ability) to implement a holistically designed project, this can lead to long negotiations, and delays or postponement of implementation of the project.

Why an obstacle and what are the consequences?

"Getting different departments working together is a common problem (the silos issue – part of the game [1]. This "policy gap occurs when ministries, public agencies, authorities, departments work in silos without co-ordination mechanisms, and roles and responsibilities are not clearly allocated across levels of government" [1]. The lack of horizontal coordination, cooperation, collaboration, or acceptance between vertical departments is a well-known issue in organizations and projects, and a common problem in the implementation of smart city projects [2–6]. During implementation of integrated strategies and plans in siloed organisations, no department generally has full mandate for achieving the targets. This can lead to long negotiations, delays or even postponement of the implementation of the project. Siloed organizational structures can involve many issues that complicate the implementation process: information islands, the lack of an overall strategic vision, task fragmentation, and overlapping or blurred responsibilities. All of these can be a direct result of a lack of coordination and communication between departments.

Solutions:

The issue of silos can be resolved by the clear definition of a person or entity (a system integrator) in charge of horizontal coordination with sufficient responsibilities and mandate. Successful coordination would require the establishment of truly multi- or inter-disciplinary teams. This approach will need to be adapted for each instance, as there is no standardized organizational structure for municipalities or their agencies. Some approaches to overcoming siloes initiated by cities include:

- installing cross-sector departments (New York City)
- creating "special staff units" (Ludwigsburg)
- installing informal interdepartmental working groups (Freiburg)
- outsourcing the duty to quasi- independent project management companies (Vienna) [1]

Another approach is to collect and aggregate the different city infrastructure data streams and control operations in a single structure - an operations centre. Co-located services and employees from different departments, working together, may act as a "nerve centre" to facilitate coordination and communication, breaking down some of the walls of administrative silos [2].

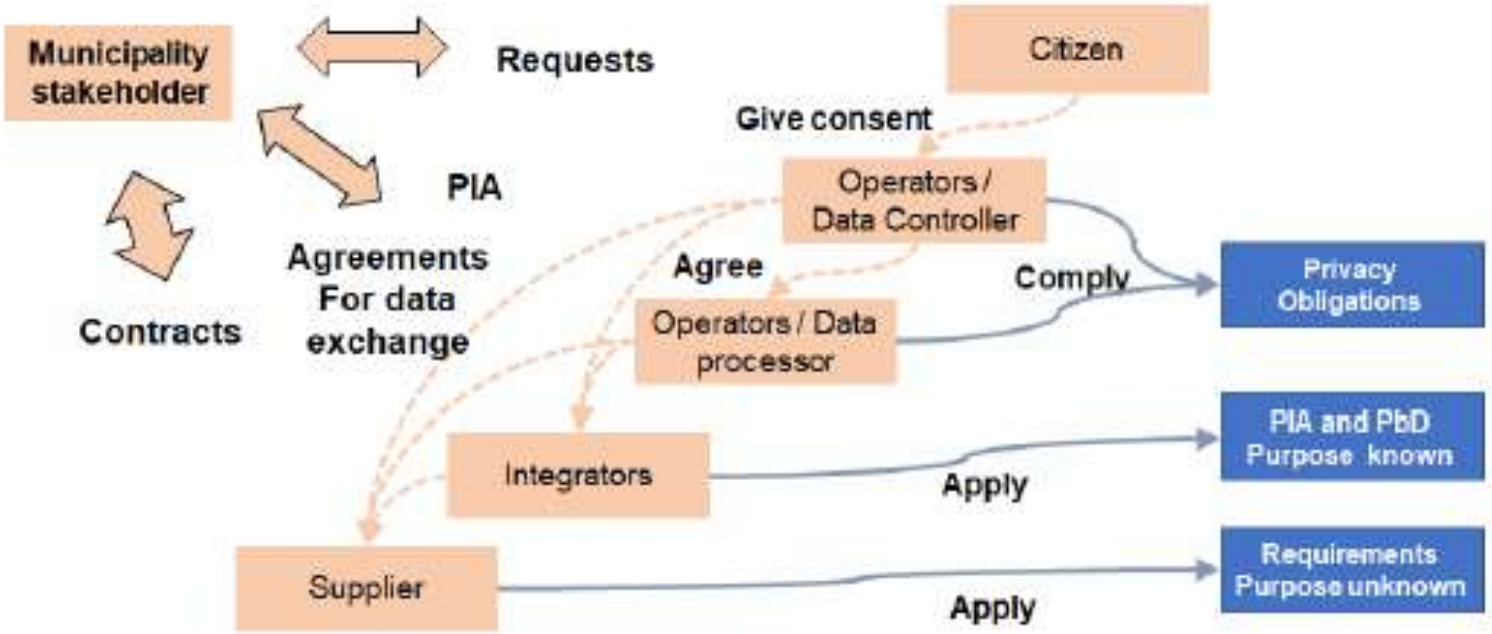
EIP-SCC
European Innovation Partnership on Smart Cities and Communities

Examples:

- "Bristol in the U.K." has "given senior executives a broad smart city mandate. Bristol is also breaking down silos between different departments in the municipality. To save money on real estate and improve coordination, the local authority is planning to co-locate nine teams in one space, which should help the city adopt new sensing technologies on a citywide scale. Bristol is also making sure it has high-level expertise in-house, primarily to ensure it doesn't become heavily reliant on a single vendor or systems integrator. 'The local authority has been astute enough to hire people with quite sophisticated technology and procurement backgrounds,' said Paul Wilson, managing director of Bristol Is Open, the smart city unit for Bristol. 'We know our strategy and we will go to vendors to fulfil aspects of our strategy. We have the intelligence to know what our plan is and we are in charge. That is very important for a city or it will be blown around in the wind of vendor games.'" [3].
- "In March 2014, Amsterdam created the role of chief technology officer (CTO). The role is responsible for breaking down silos across the city government, setting overall strategic direction, providing a consistent face to external stakeholders and helping to navigate a complex political landscape" [4].
- "Regarding silos and getting people to work together, physical proximity can be very helpful" "Get people working together by actually working together - in proximity to each other" "Communication is key" [5].
- "XXX at the moment is establishing an overall strategy for the city that is linked with budget and that is very new - before we were sectoral - we had a sectoral approach.... mobility was a certain budget, and built environment was another budget, and now we are trying to have an overall system of objectives and goals, that everybody can decide on" (Interviewee #5, 2017, p. 2).
- "...it's an effort and an initial obstacle ... maybe in the beginning, for a city that is new to, or is working for the first time in this way. So I think that it is a process that is necessary to follow and also compulsory to work in a coordinated way between all the municipal departments and to have this governance structure or coordination quite clear" [7].
- "Project tools and joint work spaces - Shared project planning tools go some way to bring coherence to interaction between staff that rarely work together but there requires an enabling structure in the management of projects that facilitates this joined-up working" [8].

EIP-SCC
European Innovation Partnership on Smart Cities and Communities

Example: citizen engagement



EIP-SCC
European Innovation Partnership on Smart Cities and Communities

Going forward

We have selected 5 testbed cities

- Helps to create long term vision for integrated planning
- Gives examples of Integrated planning
- Describes common pitfalls
- Helps to prepare urban plan for follower cities

Finalisation of the SCGP

December 2017

Dissemination among cities and test it with

5-6 follower cities

Until Mid 2018

Final version and official presentation of the guidance package in Brussels during open days in October

Replication of success stories

Alignment on EU-wide set of KPIs (including UN SDG)

Until End 2018

EIP-SCC European Innovation Partnership on Smart Cities and Communities

[1)]The SCGP will be regularly updated and in a electronic version.

WHAT WE CAN OFFER TO YOU NOW:

1. Supporting you in developing a dedicated Smart city roadmap for integrated planning and management of smart city projecten
2. Giving you tips how to better include mobility and energy solutions from lighthouse cities in follower cities integrated urban planning
3. Advising how to create task forces with people from different departments in order to avoid “silo effect”

In the replication phase:

1. Benefit from our joint collaboration with Smart cities information system, the EIP Smart cities market place, Eurocities network and the Urban Agenda from DG REGIO to better set up/improve your replication and upscaling approach
2. Facilitate B2B meetings with Investors and banks under the European institutional umbrella (i.e. during next General Assembly in Sofia 28 June)

Visibility and Communication:

1. Promote articles/video in SCIS during the demo-visit and in EIP Smart cities website;
2. Invite you and your politicians as speakers at the political event in Brussels in October for the launch of SCGP
3. Keep to the attention of EU Institutions and Member States barriers encountered and how to improve legislation in order to better fit with city needs and services’ improvement

EIP-SCC
European Innovation Partnership on Smart Cities and Communities

Ready for cooperation!!

Thank you for your attention!

E-mail: judith.borsboom@ntnu.no

EIP-SCC European Innovation Partnership on Smart Cities and Communities

[1)]The SCGP will be regularly updated and in a electronic version.

EIP-SCC
European Innovation Partnership on Smart Cities and Communities

Thank you for your participation

For more information, contact us at:
integratedplanning@eu-smartcities.eu