Real project planning needs and financial strategies

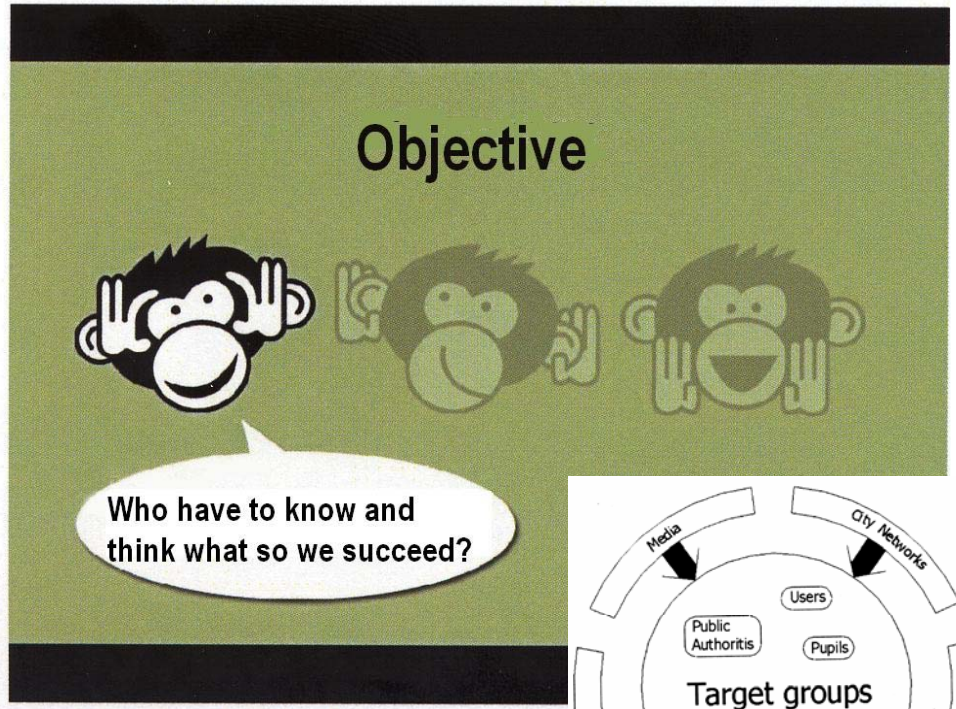
Background

- Innovative low energy solutions and renewable energy solutions are rarely introduced in everyday building process?

- Barriers:
  - Necessary information is not available
  - Necessary information is not present to the right people in the decision process
  - Limited opportunity to finance the additional cost for retrofit energy measures
- How to lower the barriers?

Objectives

- What type of info to whom and when?
- Roles in building design – critical path
- Level of details to which target group
- Financial schemes – what exists, and are they transferable to other countries?



Method

- Literature study – what has been done before?
- Main hypotheses
- Interviews:
  - interview-guide based on the main hypotheses
  - 5 persons in each of the 9 countries in the project
  - Technical department in municipalities or other building owners, some consultants
- Questionnaire:
  - 6 short questions based on the interviews
  - Send out to a large number of respondents.
  - Existing network used as distribution channel
  - motivation e-mail and questionnaire translated, answers on net
- Financial schemes:
  - Expert information collected from research partners in each country together with experience from demo-buildings and results from the interviews.

Barrieres - litterature

Type	Barrier
Economy and steering	Energy decisions are made as a link in a political process, that not always is economical rational. The municipality sees energy saving measures as an expense, not as a economical investment. The economical incitement to energy savings is diffuse or not existing.
Organization and focus	The responsibility to energy is given to the school management that not necessary have energy, technical and economy skills. The link between schools and "town hall" is missing. Lack of political and management focus.
Knowledge/ information	The municipality / institutions have lack of knowledge on energy saving measures The theoretical numbers of energy saving measures appears as uncertain
Behaviour	If the physical surroundings are shabby, it can be hard to make people change their behaviour There is a prejudice that it is not possible to influence the employees/students behaviour

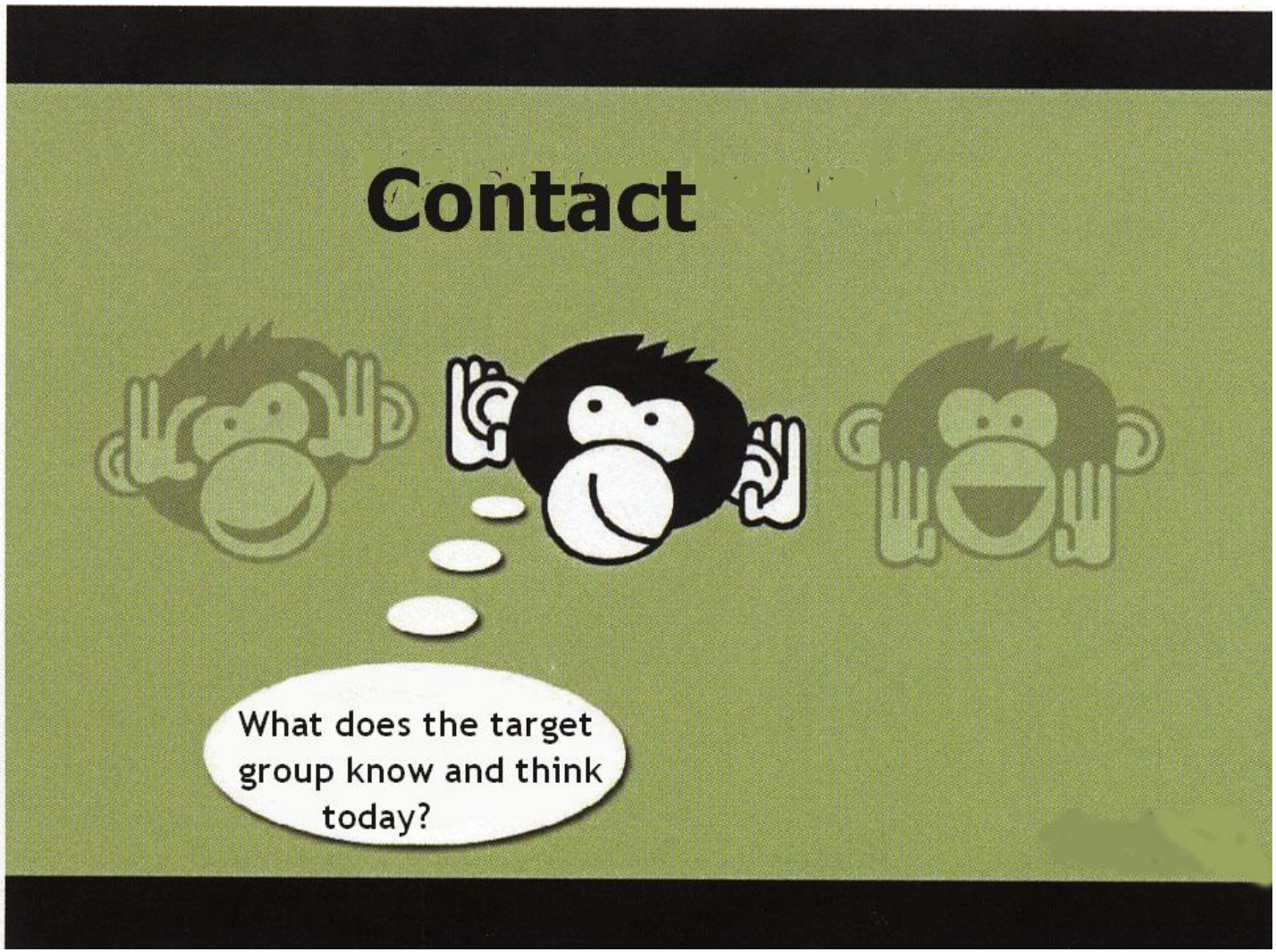
Lack of interest
Lack of knowledge
Lack of solutions and
Lack of actions (when we have the time, anyway measures, other prorities

3 main hypotheses on barriers

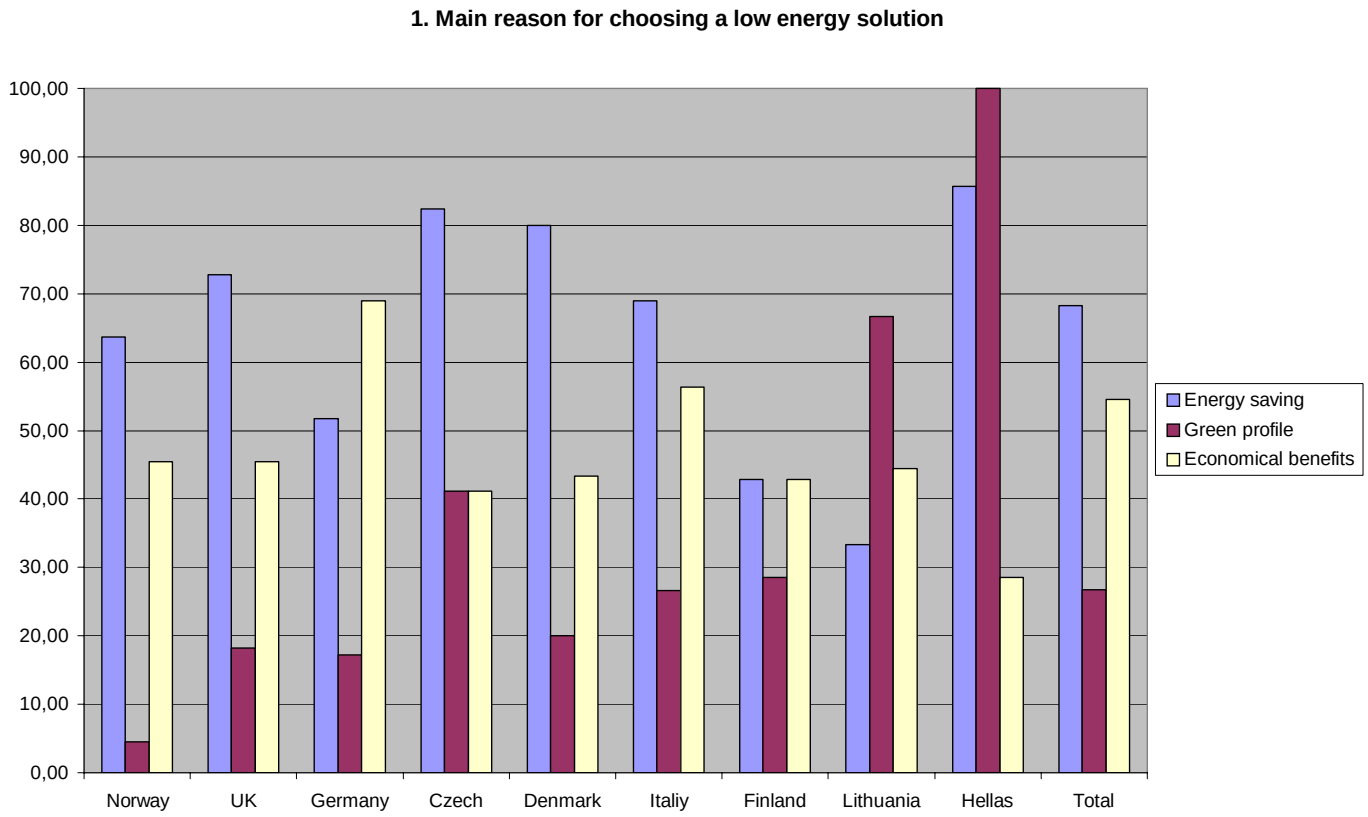
- **H1 Information**. Decision makers and others don't know enough about low energy innovative solutions that they are preferred in public building/refurbishment projects. The right information is not available/not present at the right time for the right people in the decision process.

- **H2 Economy is a main barrier.** The budgets are not big enough/marginal and small extra costs to energy friendly solutions are not preferred, both on political reasons, budgets, or other focus. Loans and other incitements are not good enough or well known. The client doesn't know enough about innovative solutions and energy saving potential, and fear it will give extra cost compared to regular solutions.

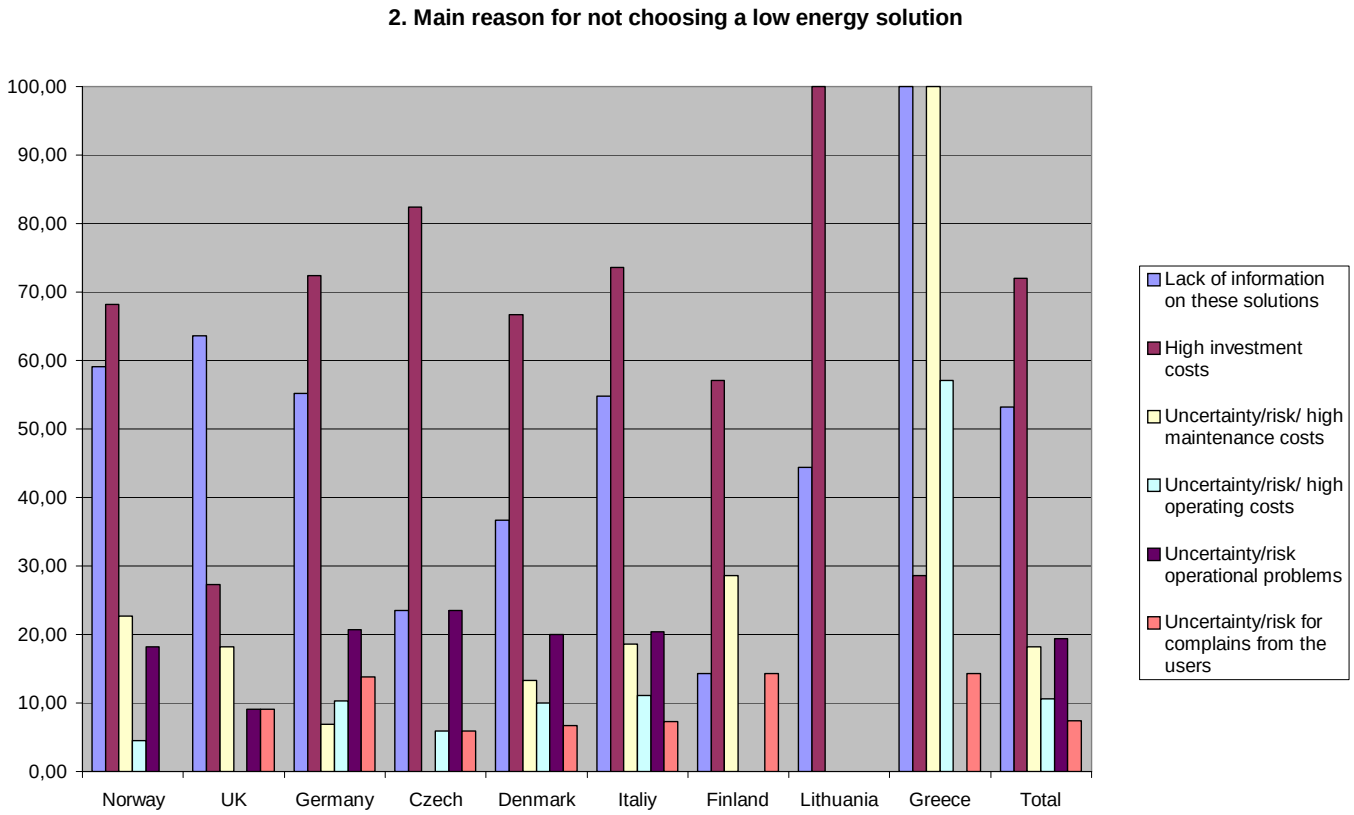
- **H3 Organization, focus and decision maker.** The client is not necessarily the decision maker. The decision can be influenced from politicians or done by others like consultants in the project. Who the decision maker is, depends on the organization in the municipality and the project.

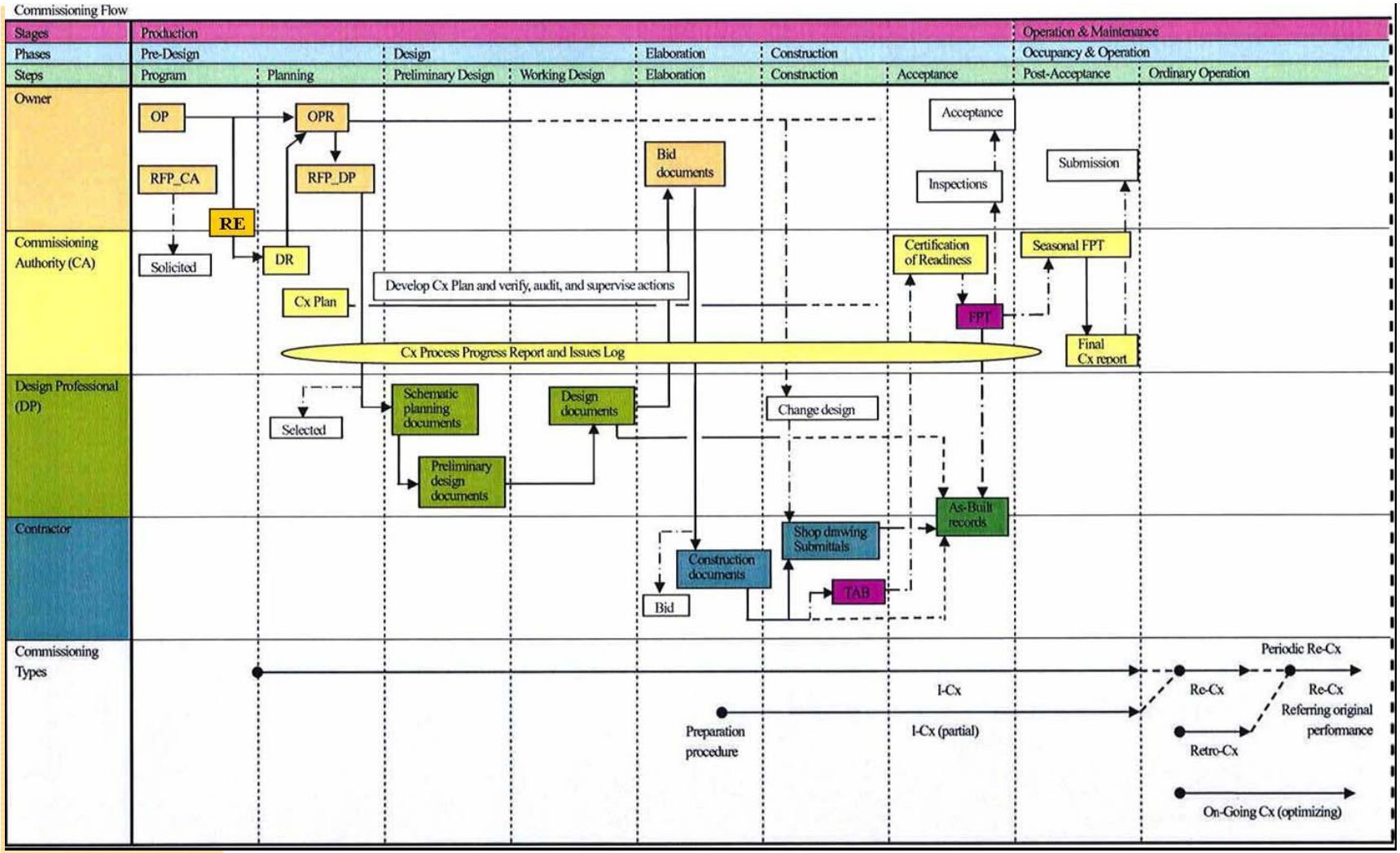

Contact
What does the target group know and think today?

Main reason for choosing a low energy solution



Main reason for not choosing a low energy solution

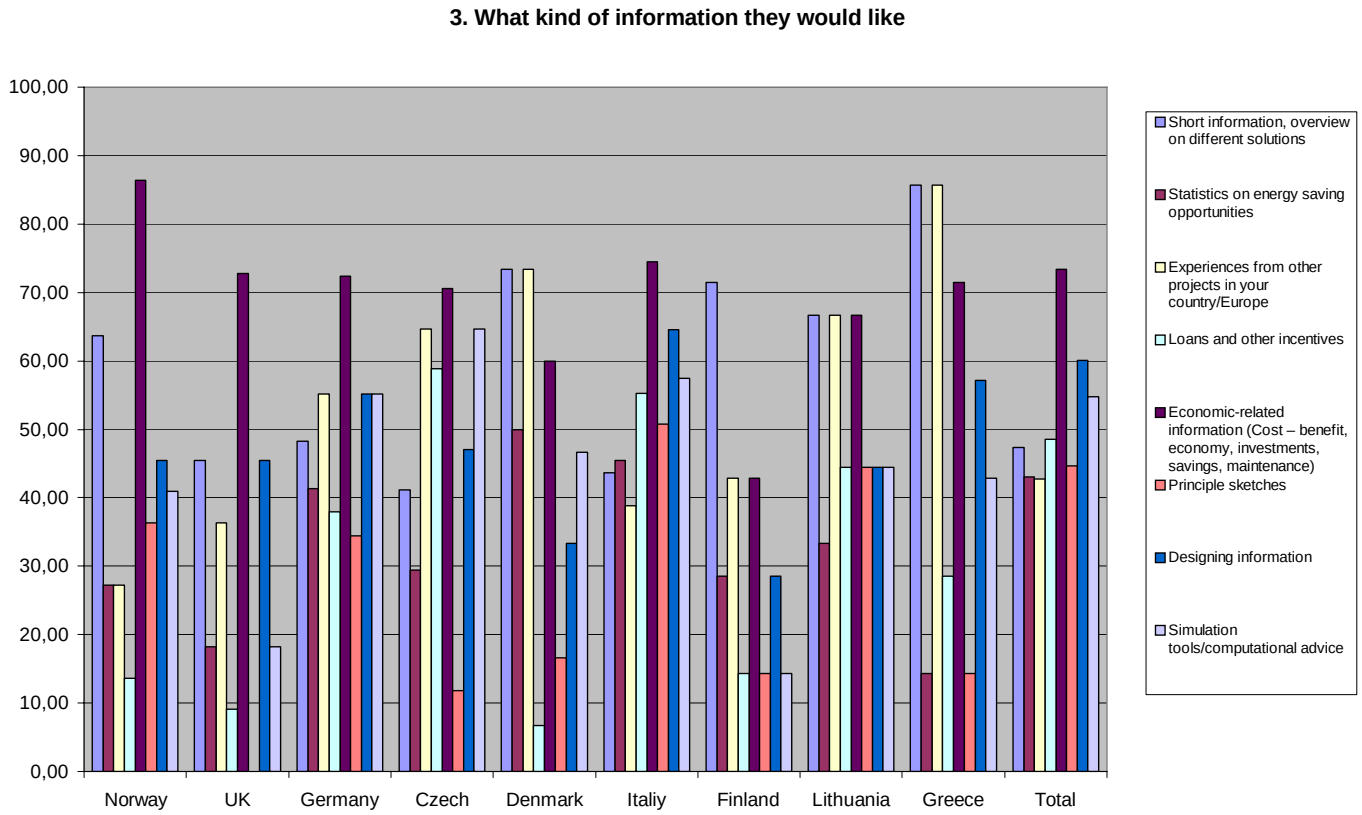



Commissioning Flow
Stages
Phases
Steps
Production
Pre-Design
Program
Planning
Design
Preliminary Design
Working Design
Elaboration
Elaboration
Construction
Construction
Operation & Maintenance
Occupancy & Operation
Acceptance
Post-Acceptance
Ordinary Operation
Owner
Commissioning Authority (CA)
Design Professional (DP)
Contractor
Commissioning Types
OP
OPR
RFP_CA
RFP_DP
RE
Solicited
DR
Cx Plan
Develop Cx Plan and verify, audit, and supervise actions
Cx Process Progress Report and Issues Log
Bid documents
Acceptance
Inspections
Submission
Certification of Readiness
Seasonal FPT
FPT
Final Cx report
Selected
Schematic planning documents
Preliminary design documents
Design documents
Change design
As-Built records
Shop drawing Submittals
Construction documents
TAB
Bid
Periodic Re-Cx
Re-Cx
Re-Cx Referring original performance
Retro-Cx
I-Cx
I-Cx (partial)
Preparation procedure
On-Going Cx (optimizing)

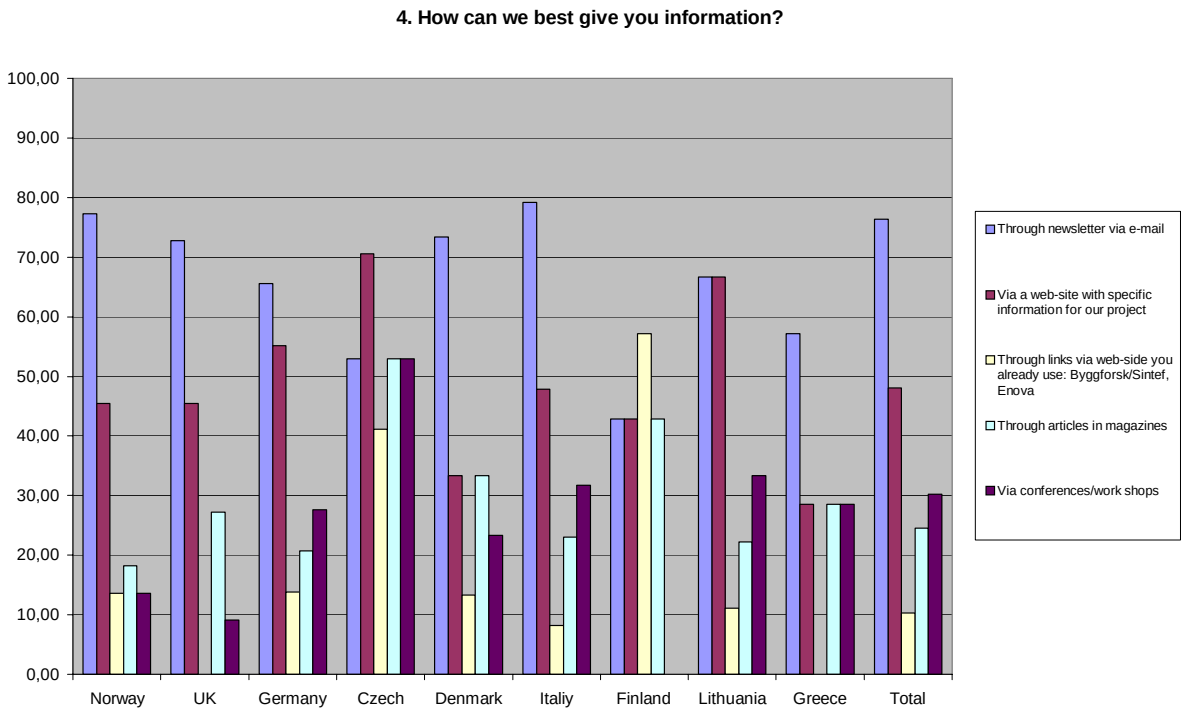
Decision prosess – who really decide?

- Market_: the f course he/she then is influenced by the marked; types of products available, the price and promotion of these, but when action on behalf of the municipality etc, the decision maker is also influenced by other factors:
- Environmental:
  - level of demand for the solution in the municipality, the region or the country
  - economical outlook, in the company/municipality
  - political and regulatory developments – do they have to do it?
  - Social responsibility concerns – more environmental friendly solutions?
- Organisational:
  - policies in the municipality, for instants to use low energy solutions
  - objectives, for instances the project should use not more than 100kWh/m2
- Interpersonal: (interaction with/influence from other colleagues)
  - Is there an interest for this kind of solutions among the colleagues?
  - does the person who make the info search and proposal for a solution have the authority to make the decision?
  - Status among colleagues/network: does choice of this kind of solutions give the decision give status, acceptance or goodwill?
- Individual:
  - age (experience)
  - education (knowledge, understanding etc)
  - risk attitude: is he/she willing to take the risk of choosing not the standard solution? An innovative solution may cause problems and extra expenses.

Kind of information they would like



How can we best give you information?

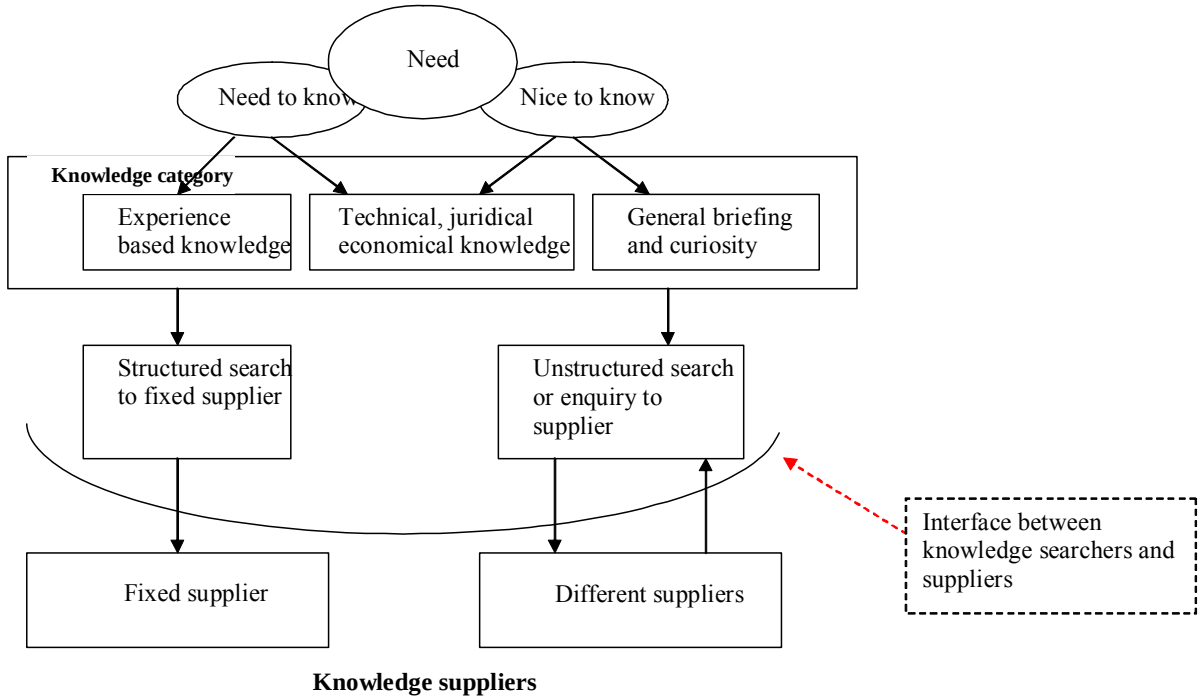


Two (three) challenges

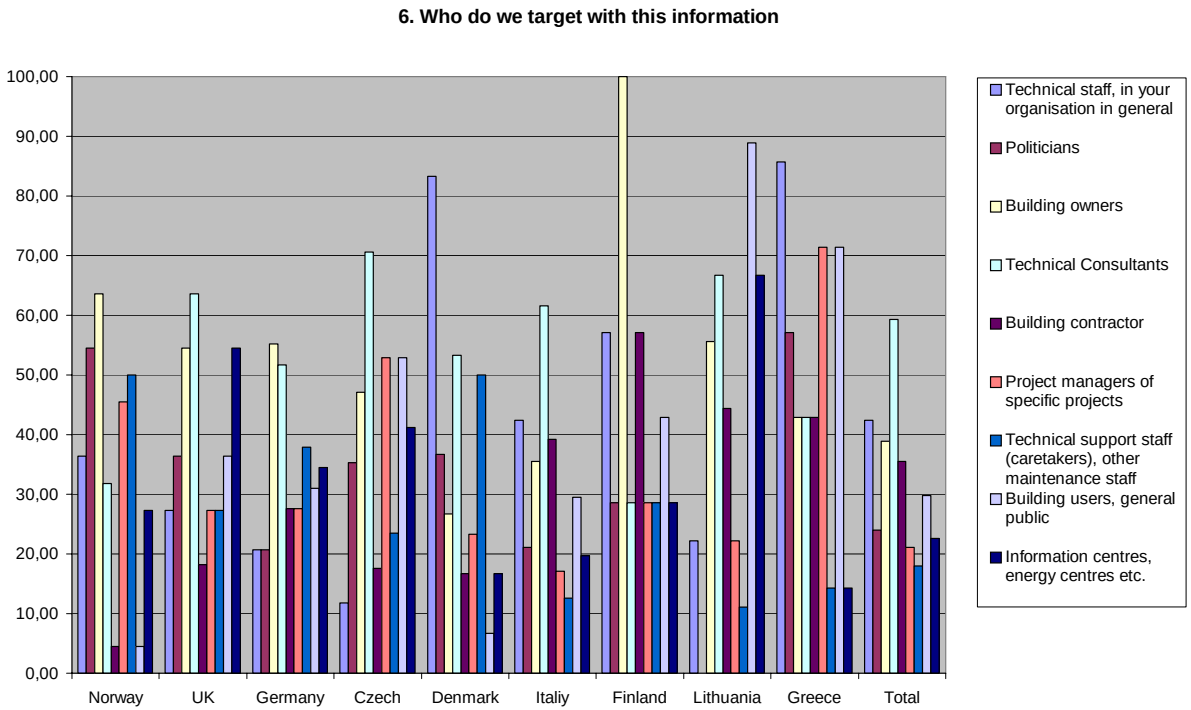
- Giving information that the solutions and information exits (passive)
- Finding back the information when you need it (active)

  (student habits)
- Time

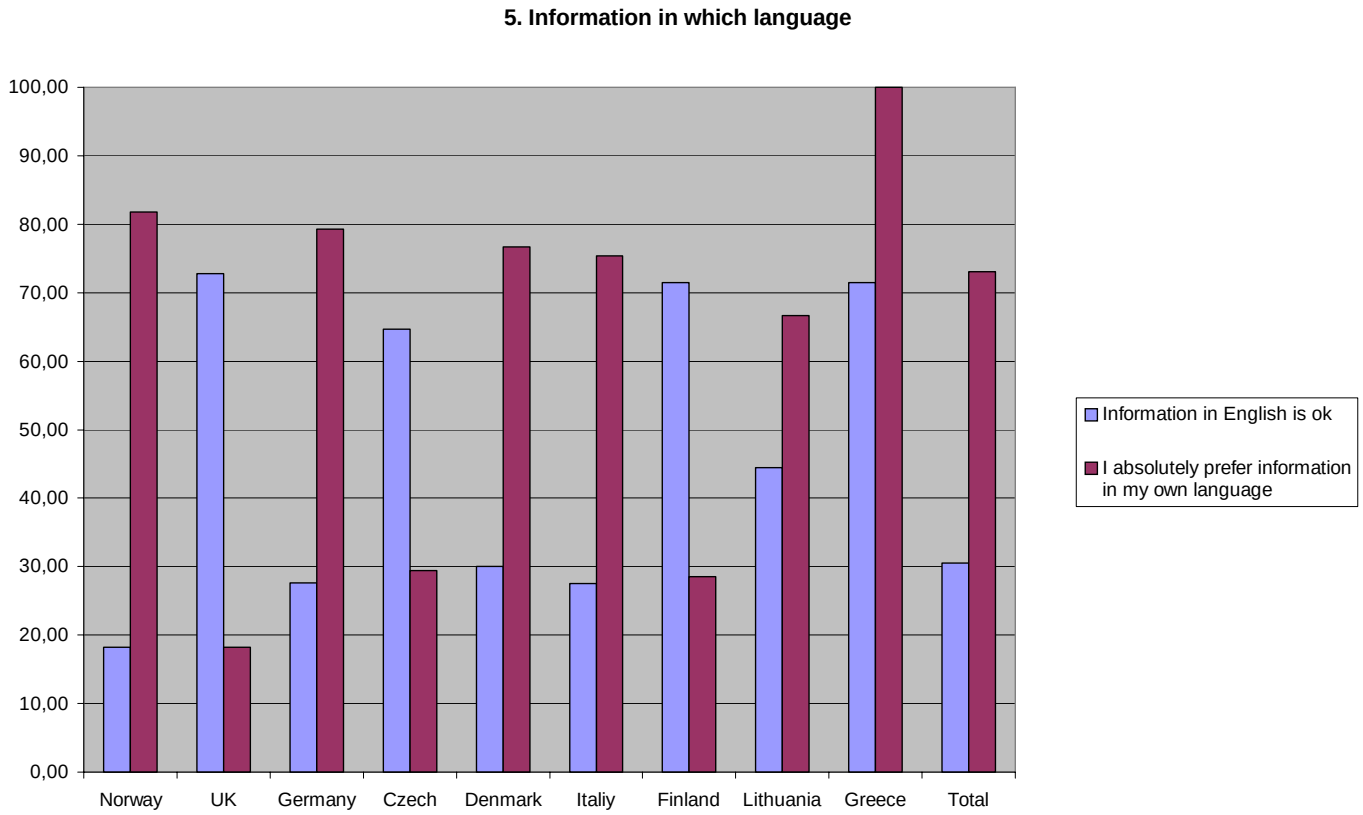
- AIDA – attention, Interest, decision, action
- The fragrance of information



Who do we target with this information?



Language


5. Information in which language
100,00
90,00
80,00
70,00
60,00
50,00
40,00
30,00
20,00
10,00
0,00
Norway
UK
Germany
Czech
Denmark
Italiy
Finland
Lithuania
Greece
Total
Information in English is ok
I absolutely prefer information in my own language

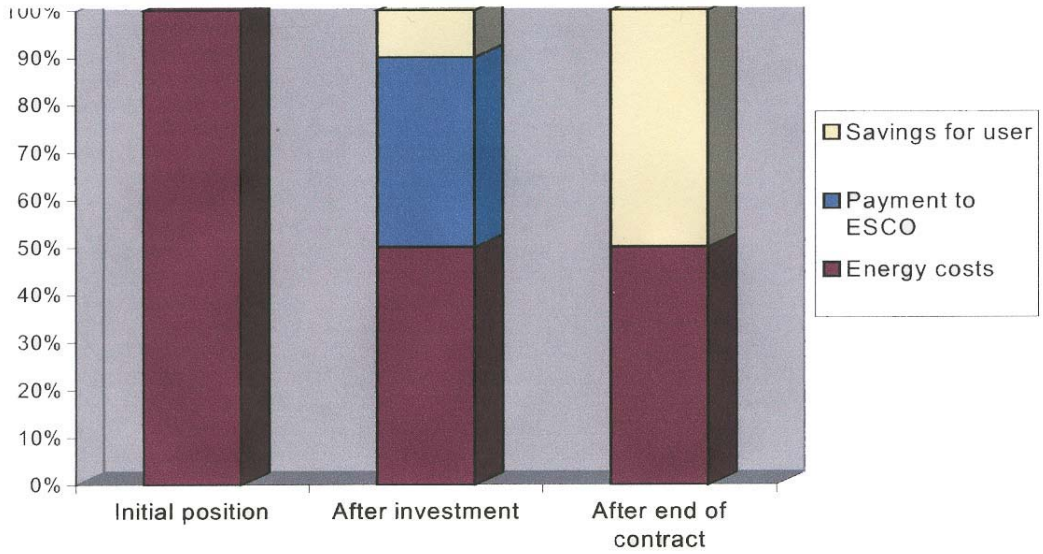
Financial schemes

·y	Source of Funding	Service Responsible	Type of Funding	Name and Description of Program	Year Started	Public buildings included
ANY	State (National)	Ministry of Economy Ministry of Environment Ministry of Buildings	Grant, Co-financing of innovative retrofit measures (pilot projects)	EnSan	1998	Yes
	State (National)	KfW Bank (Kreditanstalt für Wiederaufbau)	Loan with low interest rates for energy-efficient retrofitting	KfW-Förderung	1998	Possible (through private contractors)
	Private	Energy Supply Companies and Banks	Financing of energy conservation retrofits, while overtaking 10 years of operation → Gradually paid back by energy savings	Third party financing	1995	Yes
	Regional (City of Stuttgart)	Dept of Environmental Protection, City of Stuttgart	Financing of energy efficient measures for public buildings → paid back by energy savings	Internal contracting-Intracting	1995	Yes
	State	Electricity companies	Subsidized price for electricity production by renewables fed to the grid		1998	Yes
	State	Tax authorities	Lower taxes for low energy houses	Niedrigenergiehaus-programm (low energy house programme)	1996-2000	No
	Public	Building Owner	Increased rent based on retrofit measures	Law on increased share on rent	1986	Yes

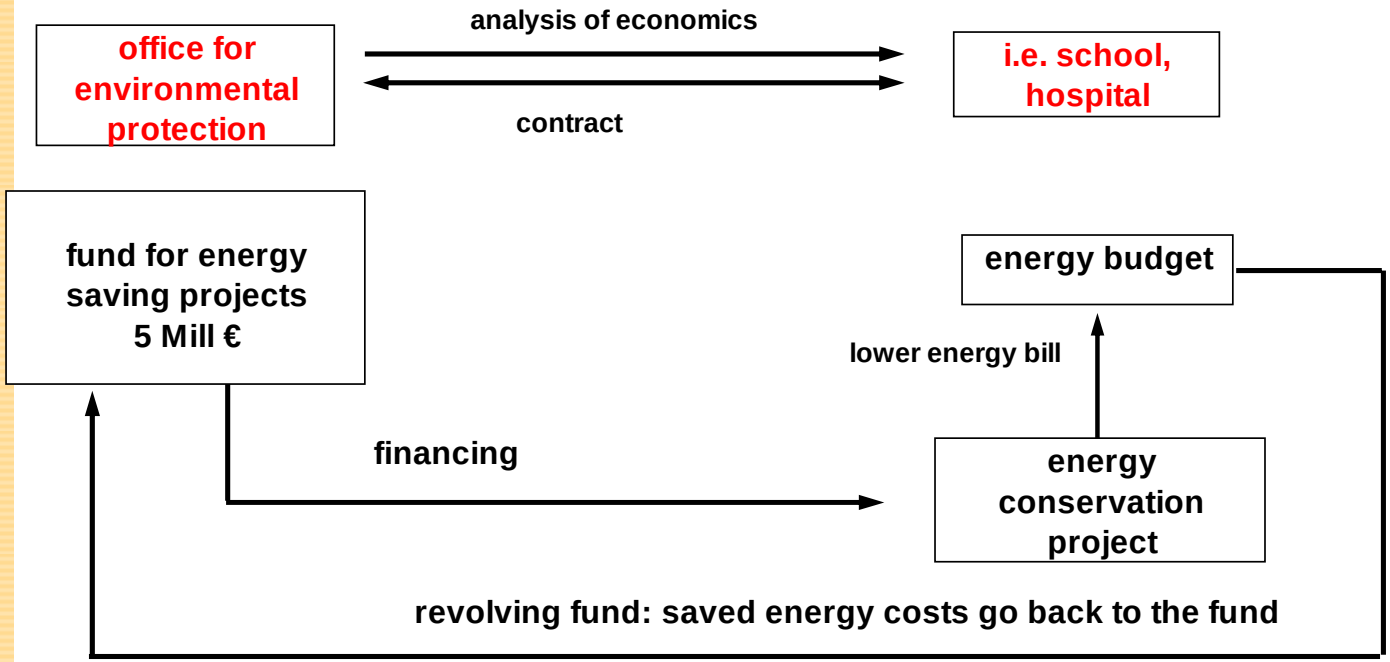
Financial strategies

- Most funding from the state (national or regional)
- Some private funding (bank, third party financing)
- In many countries there are ambitious programs for integrating of PV
- Special programs in most countries for low energy publick buildings. These are used as pilot projects (demonstrate efficiency and advantages)

Third party financing



Intracting – internal contracting




Targeted communication
Right message to right target group in right cannel

UK and Italy

ry	Source of Funding	Service Responsible	Type of Funding	Name and Description of Program	Year Started	Public buildings included
	Energy Savings Trust	Energy Savings Trust	0% Interest Loan	Community Energy Program		
	Carbon Trust	Carbon Trust	No-cost service	Energy Efficiency Loan (for replacing existing equipment)		
	Carbon Trust	Carbon Trust	No-cost service	Energy use survey		
	National	DTI	R.E. Grants	Clear skies Grants for renewable energy systems (esp. P.V.)		Yes
	National	Ministry of Environment	75% grant for P.V. installation in connection with grid	"P.V. roofs" programme		Yes
	National	Ministry of Environment	85% grant for integration of PV systems	Best architectural integration of P.V.		Yes
	National		20% grant for r.e. thermal systems	Solar Thermal programme		Yes
	Regional	Local Administration	50% grant 50% loan	Solar Thermal program installation (for sustainable energy system)	2000	Yes

Czech, Norway, Greece

	Source of Funding	Service Responsible	Type of Funding	Name and Description of Program	Year Started	Public buildings included
IC	State (National)	Ministry of Industry and Trade → Czech Energy Agency	15% subsidy of total investment costs	Reduction of energy intensiveness in public buildings incl. Retrofits		Yes, in some cases
	State		Loan (min 60% of investment costs)	CSOB Fund Phare for Energy Savings		
Y	State	Enova (Public enterprise owned by Ministry of Petroleum & Energy)	?	?	2001	
	State	Research Council of Norway		Funding research on S.D. topics		
	State	GRIP (Ministry of Environment)	50% state	EcoBuild programme	1998-2003	
	State	State Housing Bank	Public subsidies Grants Energy saving Loans	Financial support for retrofitting of buildings		
	Regional	Oslo Energy Saving Center Akershus Energy Saving Center	40% subsidies of R.E. systems	Subsidies of R.E. Systems		
	State	Ministry of Development Ministry of Environment	Grant for low energy retrofitting of public buildings	EPAN	2003	Yes

Denmark

	Source of Funding	Service Responsible	Type of Funding	Name and Description of Program	Year Started	Public buildings included
RK	Private	Energy Supply Companies and Banks	Third party financing – could also be arranged as sort of leasing arrangement	Financing of energy conservation retrofits, while overtaking X years operation → Gradually paid back by energy savings	2005 (?)	Yes
	Different municipalities	Dept of Municipal Building Maintenance	Financing of energy efficient measures for public buildings→ paid back by energy savings	Internal contracting-Revolving funds	1995	Yes

Success rate

very similar, 2 types?

Name and description	Countries	Success Rating (High / Moderate / Low)	Reasons	Transferability to other countries	Necessary adaptations
EnSan Co-financing of innovative retrofit measures	Germany	Moderate, limited to few pilot projects	Limited funds	Yes	Target values might have to be adapted (in EnSan: 50 % reduction of primary energy demand)
EPAN Co-financing of pilot projects (E.U., public)	Greece	Moderate, Limited only to some technologies and functions (Hospitals, schools, island communities)	Limited funds Questionable selection procedure	Yes	Best to have open call for tenders for retrofit projects
Intracting Internal contracting-Stuttgart	Germany Denmark	High	Quick decision Revolving funds replenished by savings No risks, no bureaucracy	Yes	Depends on structure of local facilities involved
Third party Financing (t.p.f.) Financing of energy efficiency measures, paid back by energy savings	Germany, Greece Denmark England (?)	High	lots of projects, interesting investment possibility for contracting companies	Yes	Complex legal procedures to have the program started in most countries
E.U. grants for pilot projects	All European countries	Moderate	Financing of innovative low energy projects, including public retrofits, following open call for proposals procedure but limited amount of buildings, high effort for application, reporting, etc.	Yes, even to some non member countries	Often difficult to match e.u. funding through local grants (public or private)

Name and description	Countries	Success Rating (High / Moderate / Low)	Reasons	Transferability to other countries	Necessary adaptations
-Clear skies P.V. roofs etc Grants for Renewable Energy Systems, esp. P.V. in connection with grid	U.K. Italy Germany	High	Covers large percentage of installation cost for p.v. systems integration	Yes	
Solar Thermal Program Grant for installation of solar thermal systems	Italy Germany	High	Covers part of installation cost for solar thermal systems	Yes	
Electricity price subsidy for renewables fed to the public grid	Germany Greece	Moderate for Greece? High for Germany	Price fixed has to be high enough to act as incentive for electricity production by renewables Subsidised price in Germany is high	Yes	