

TAKING
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Evaluation of financing models for energy-efficiency upgrades of street lighting

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Aims and tasks



Aim

- Assist municipalities on financing energy efficiency and low carbon upgrades of
 - Street lighting
 - Public buildings

Tasks

- Extensive overview and analysis of financing models used to finance the upgrade of the public infrastructure.

Methodology

Interviews via Phone and E-Mail

- Ministries, utilities, municipalities, cities, EU funds, other IFIs, etc.

Model overview structure

- Key actors and their roles
- Projects that could be financed
- Advantages and disadvantages

Online Survey

- Sent to 34 associations of municipalities and 300 other stakeholders.

Furthermore

- Literature review
- Screening project websites
- Screening database

Conducting individual case studies

- Model context
- Projects scope
- Involved stakeholders
- Implementation experience
- Outcomes

Review of models

Self-financing

- Budget allocation
- Internal contracting
- External revolving fund

Debt-financing

- Concessional loans
- Commercial loans
- Bonds
- Institutional investors

Financing by a private contractor

- Simple contracting model
- Contracting with forfeiting and waiver of defense

Financing by a private contractor through energy savings (EPC)

- Guaranteed savings model
- Shared savings model
- Other energy performance contracting

Leasing and concession

- Sell to a private contractor and leaseback
- Concession to a private partner

Project finance

- Special purpose vehicle (SPV)

Financing by utilities

- Energy Efficiency Obligation Schemes
- On-bill financing

Financing by citizens

- Crowdfunding

Case study

Private contracting with forfeiting and waiver of defence Litomysl, the Czech Republic



Model with forfeiting and waiver of defence

Architecture

- The contractor sells part of its receivables to a bank in a “forfeiting transaction”
- The city must pay a part of the fee to the contractor and a part - to the bank
- The city may provide a guarantee to the bank (waiver of defence)

Other features

Projects that can be financed by this model:

- Higher than 1.0m EUR

Jurisdictions that applied this model:

- Dillenburg, Germany and the city of Litomyšl, the Czech Republic

Advantages

For municipalities:

- can use off-balance sheet financing;
- pay lower interest rates than those incurred under the simple contracting model.

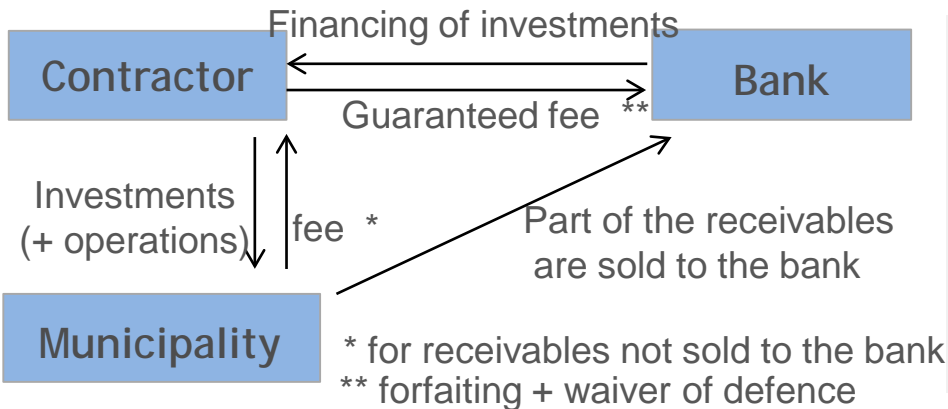
Disadvantages

For municipalities:

- face higher interest rates than in concessional loans;
- must contend with highly complex financing arrangements;
- must provide a guarantee for a bank.

Litomysl

Project overview



Financing structure

- Contract period of 10 years
- 97% of receivables sold to the bank (guaranteed by the municipality)
- 26.9% of guaranteed energy savings

Project scope

- Modernization of 1,225 luminaries by LEDs with dimming, traffic monitoring and remote control in real time
- All installation works had to be implemented between 2014-2015

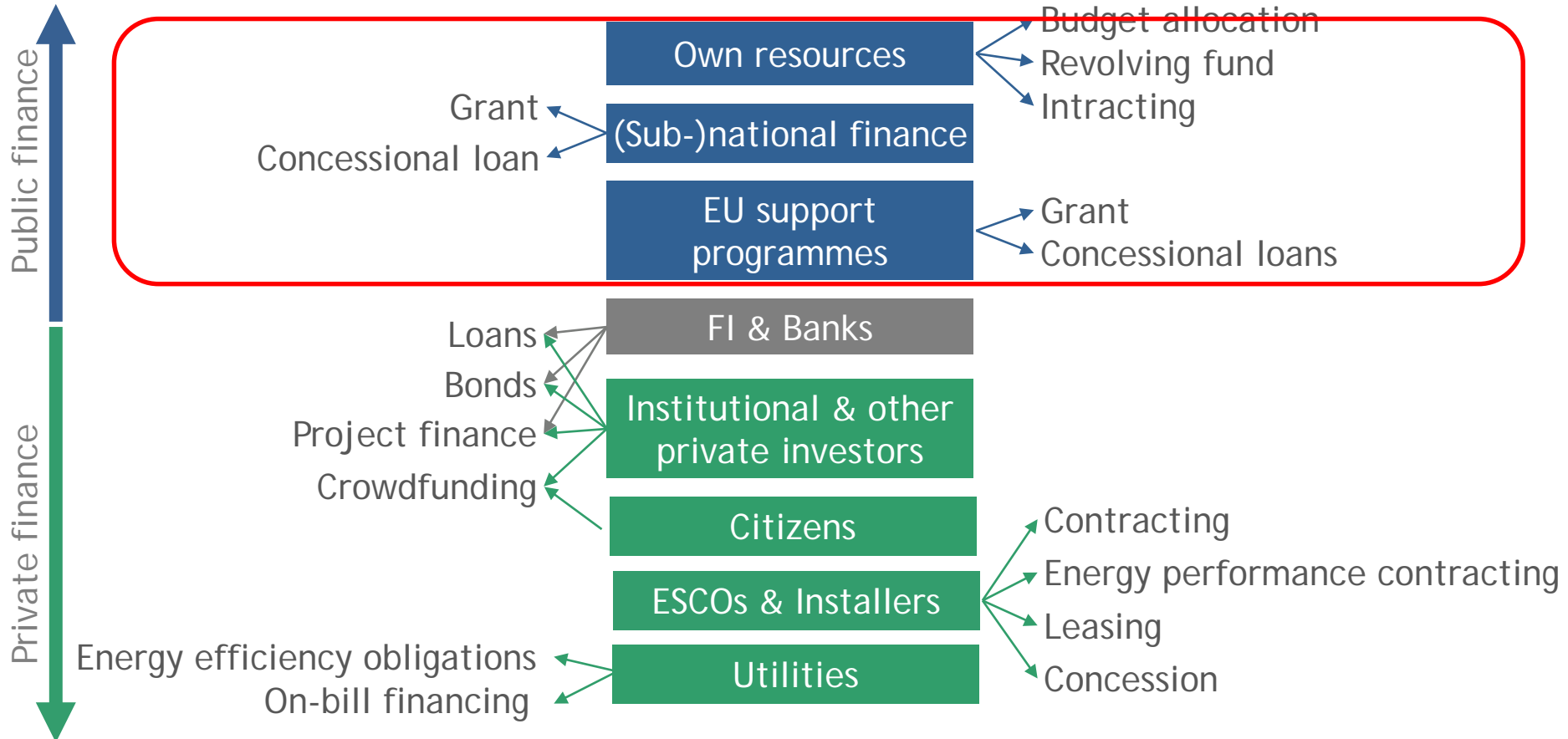
Implementation & outcome

- Given its UNESCO world heritage status, the city conducted lighting upgrade complying with national heritage-rules
- Savings are higher than guaranteed, making the project more profitable for the contractor and the municipality

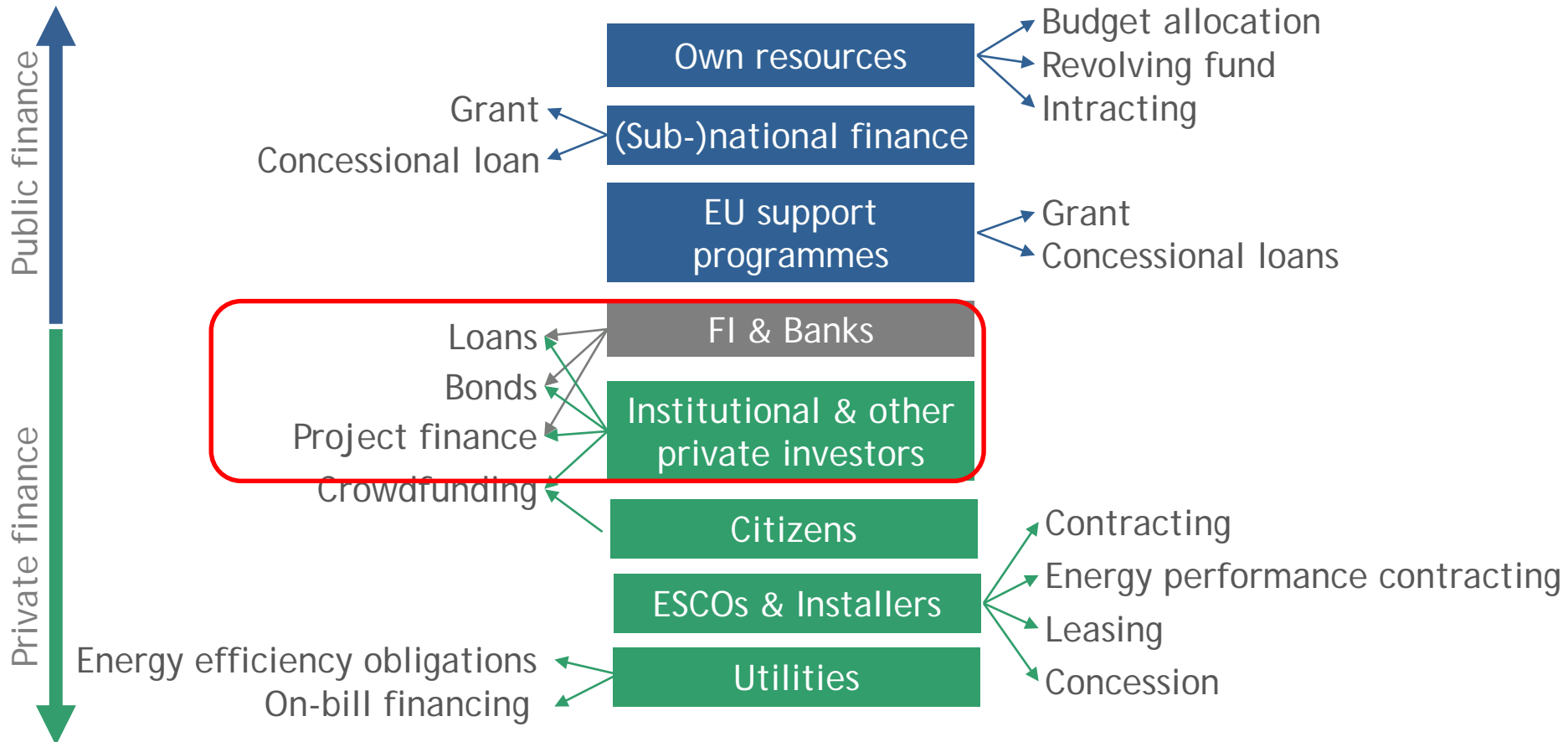
Key considerations in choosing a financing model

- Availability of public policies and funding
- Project size and bankability
- Maturity of the market of energy service companies (ESCOs) and energy service providers,
- Municipality's borrowing capacity, and
- Availability of financial instruments from commercial financial institutions.

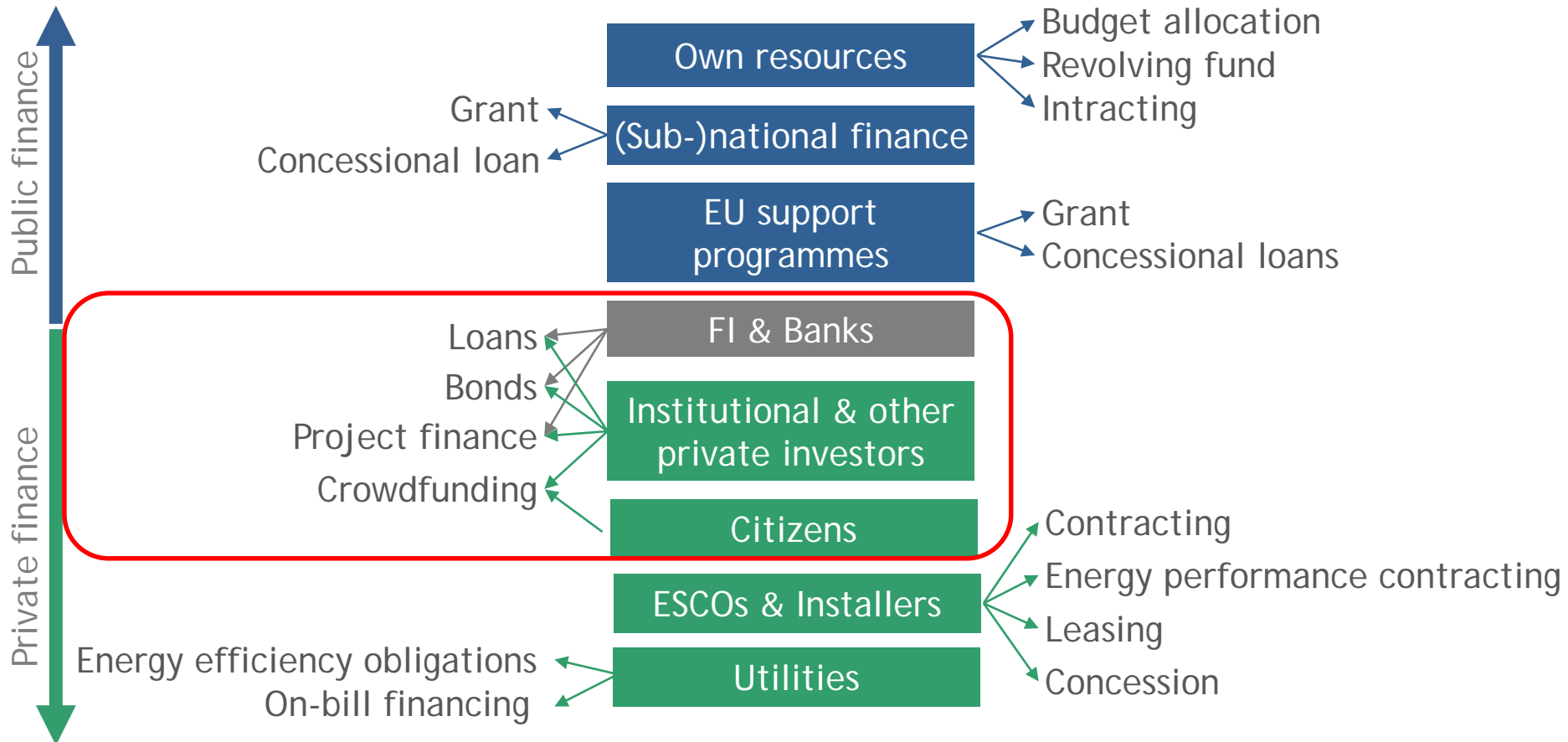
Availability of public policies and funding



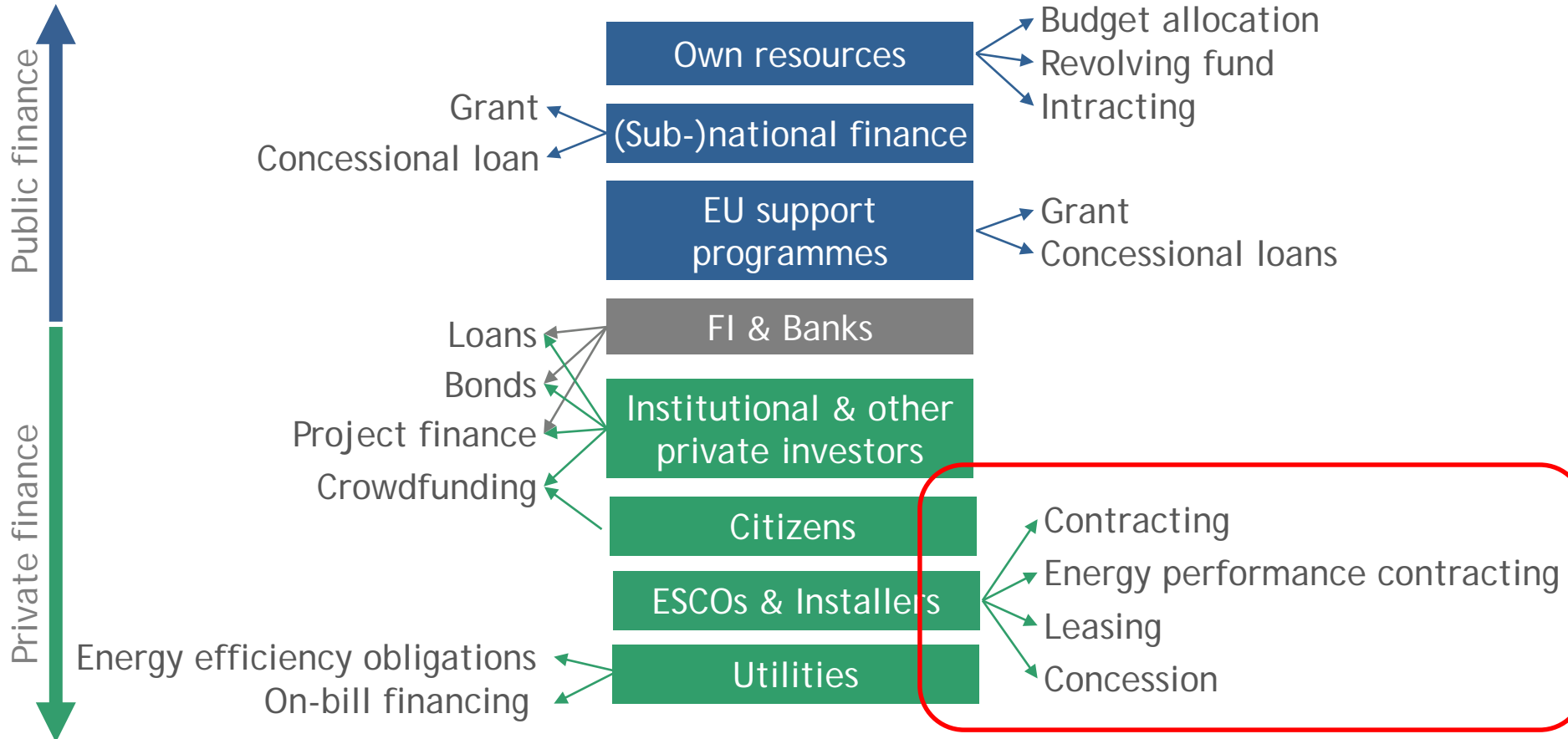
Municipality's borrowing capacity and availability of commercial financial instruments



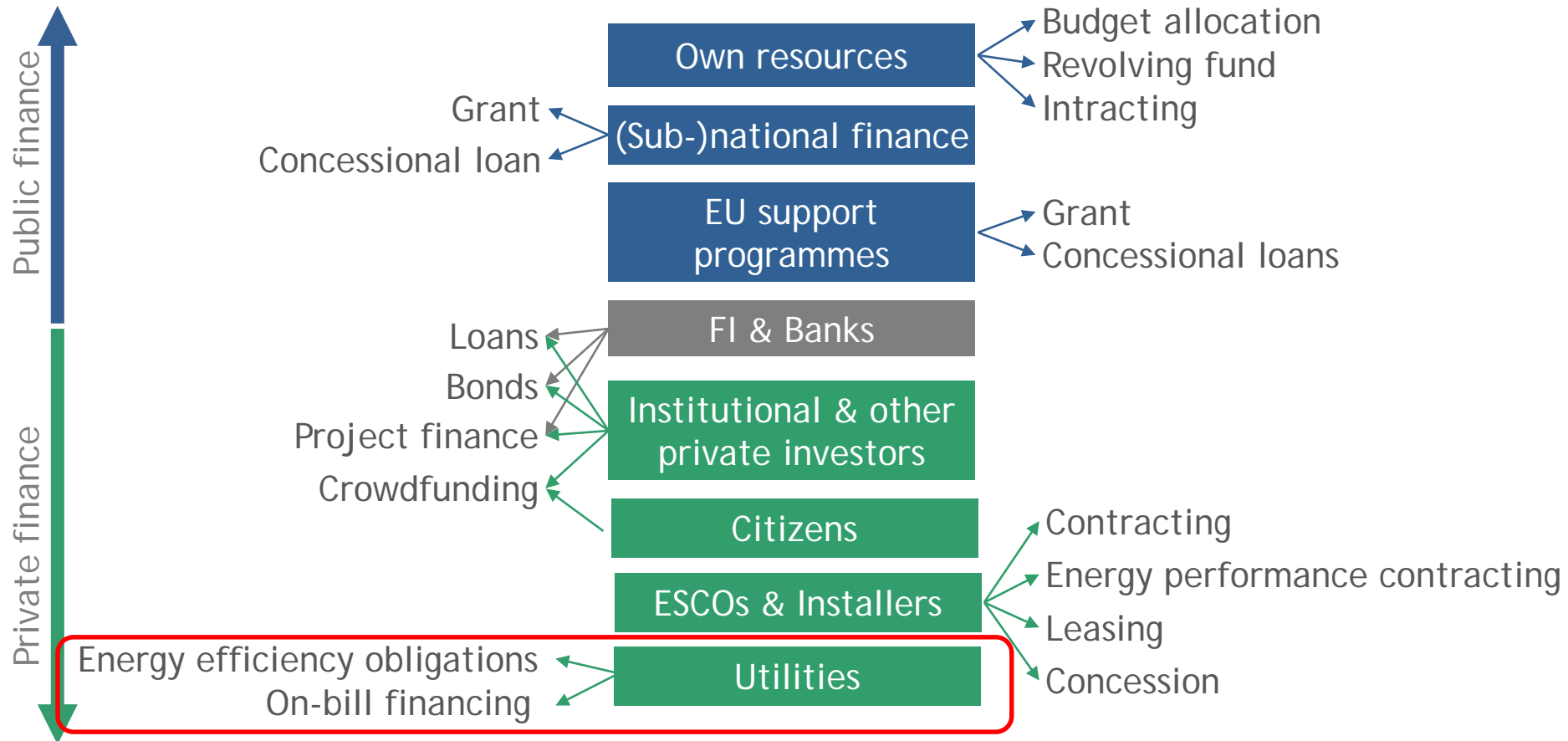
Project size and bankability



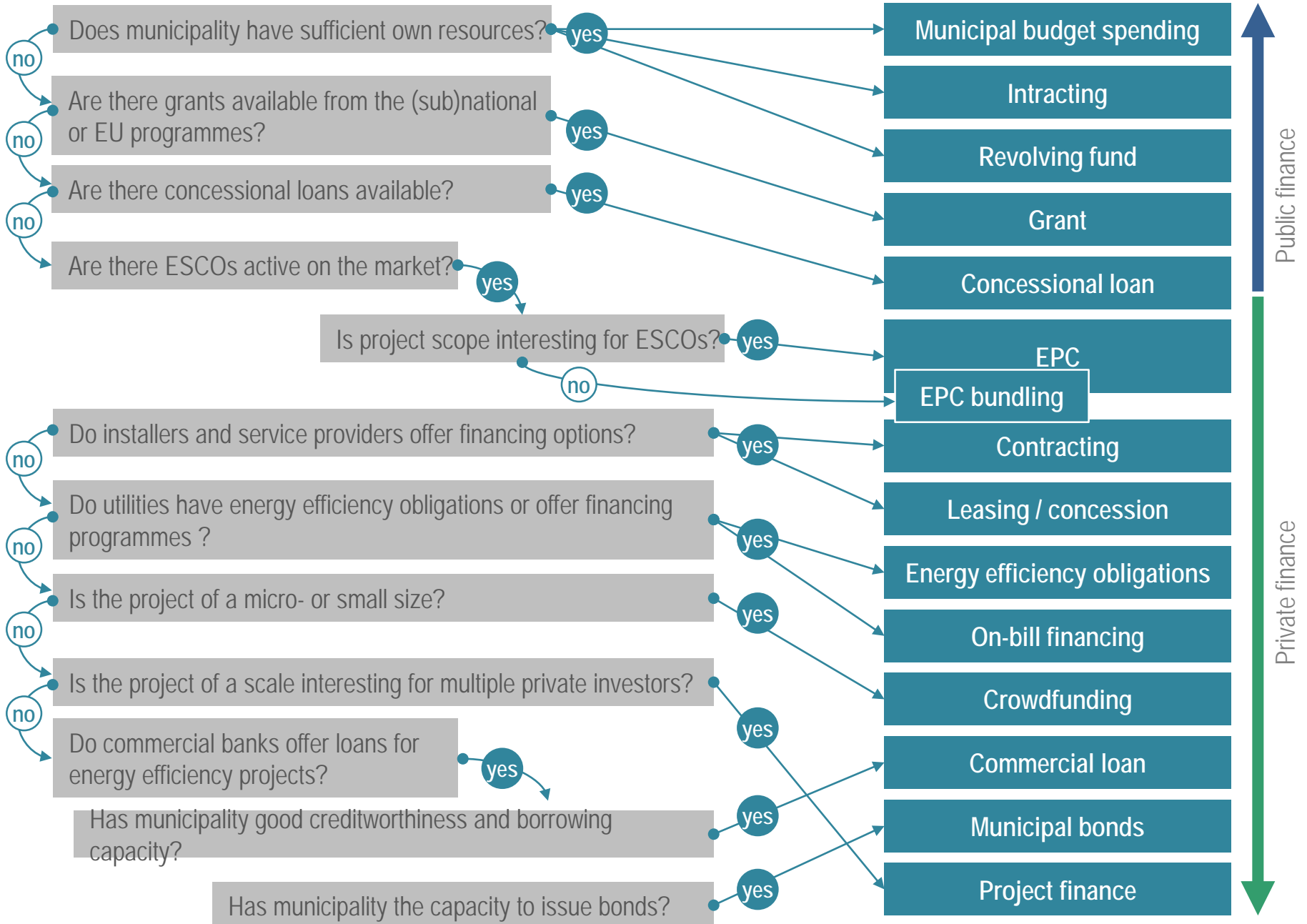
Maturity of the ESCO and energy service providers market



Policy provisions to reallocate the burden to utilities



Decision-making tree: summary



Conclusions

- There is no model which is best for every set of individual customer needs
- Models differ in complexity, degree of autonomy of the municipality, risk sharing between municipality and an eventual private partner, number and kind of involved partners, costs, running time, etc.
- Consulting an expert before deciding on a model is highly recommended

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