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Financial Instruments In Smart City Projects

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Introduction

The 2014-2020 programming period and financial framework should result in a visible and tangible form of one of the largest and most important innovations in European Union funding, which would mean a fundamental change in its basic principles. This will consist of a reduction in the relative weight of the still dominent subsidy methods (based on single and unrepeatable use of the relevant financial allocations) and a corresponding increase in the weight of innovative repayable financial engineering instruments. Their principle is based on the return of expended funds and thus also the possibility to reuse them, furthermore combined with an expected significant leverage effect based on the participation of private or national public capital. It is clear to us that financial instruments represent a very promising and inspiring tool in this segment, with regard to the broader macroeconomic context of the current reality in the EU and the following factors stemming from it: the resulting emphasis on strengthening fiscal discipline; the simultaneous need to significantly accelerate investment recovery; the need to monitor the funding priorities of the EU with a focus on results, efficiency and added value to the EU in much simpler and significantly more flexible conditions. Financial instruments have not been very successful in the conditions of the Czech Republic. Therefore it should be one of the key economic and political priorities also for the upcoming elections to create an accommodating and supportive environment for a significantly greater role of financial instruments in the Czech economy.

Characteristics and benefits

Although financial instruments represent a relatively complex structure of very concrete solutions, at the same time they also possess some common features which underscore their ability to create the effects and benefits that are expected from them.

Financial instruments represent a perspective way of making more effective use of limited EU funding resources, most notably in Cohesion Policy, but also in programmes financed from chapter 1a. The EU budget in its newest version and also the European Fund for Strategic Investments (EFSI) as well as some autonomous programmes and products of the European Investment Bank (EIB) and the European Investment Fund (EIF), ensure a greater rate of utilization of these resources in a **more effective, advantageous and sustainable way**.

Financial instruments are aimed at **economically justifiable projects** with real capacity to achieve the desired return (thus these instruments will not become universal or have mass application, but will always be discretionary, selective) for which a set of specific repayable instruments in the form of **loans, guarantees, direct capital investments or project bonds** and other related mechanisms to manage risk will be used for achievement of returns. Moreover there is the possibility of **a complementary process** and purposeful connection with grant instruments within cohesion policy or with repayable instruments used outside cohesion policy.

A characteristic feature of repayable instruments is that they meet three basic requirements placed on them: **effectiveness** (which is determined by the performance of the duties of the managers administering these funds, and fulfills the public interest in a completely different qualitative way than subsidies), **suitability** (which is given legitimacy in the existence of each programme – in Operational Programmes within cohesion policy, respectively that part which is earmarked for the purposes of repayable instruments) and **sustainability** (which is based on and relies on the definition of the principle of recovery of revolving instruments).

A visible advantage of the use of repayable instruments is the possibility (unlike in subsidy support) of **long-term recycling of financial resources**. If this turnover is linked with mobilization of additional financial resources of a private character, these tools facilitate allocation of capital to promising areas of development in both the corporate and public sectors. Considering that management of the recovery process is carried out in a transparent manner conforming with the market by competent institutions, these instruments contribute to achievement of sustainability and return on invested financial resources. The revolving nature of funds constitutes a natural market test of the return on the project; in general the amount invested thus exhibits significant macroeconomic and fiscal effects because it allows for concentrated and long-term use of a significant volume of public funds (for example for strategically important investments in the public interest). This effect stands out more in connection with the expected economic level of regions in the Czech Republic, which will probably lead to a significant reduction in cohesion policy funding benefitting them in the period after 2020.

Another advantage is also **flexibility in designing programmes**: operators have the possibility to choose whether they will provide investments or interventions through non-repayable subsidy grants or repayable methods through financial instruments in significantly more representative and stronger forms than before. It will also be possible for them to choose the most appropriate financial instruments. The Regulation also bring greater clarity and certainty to the legal framework for repayable financial instruments.

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From the perspective of **budgetary and fiscal policy,** strengthening repayable financial instruments which are viewed as catalysts for public and private resources will enable Member States and their regions to achieve strategic levels of investments and interventions.

If repayable financial instruments are further applied on a larger scale and are better adapted to the specific needs of Member States and regions and the final beneficiaries operating within them, it will be possible to significantly widen access to financial resources for the benefit of the full range of local socio-economic actors. For example, they should serve companies investing in innovation; households which prefer to save energy resources in the operation of their homes and individual entrepreneurs in realizing their business ideas and strategies. Last but not least, they should benefit public infrastructure by improving its effective functioning in the areas of transport, the municipal economy and management of municipal funds and by streamlining its routine operational activities in line with the strategic objectives of EU Cohesion Policy and conforming to the achievement of expected outputs within the Operational Programmes.

Application in the 2014–2020 period

There is significant expansion in terms of the volume of funds allocated through these instruments, the range of areas in which these can be applied as well as a more flexible and effective supporting environment, enabling their smooth integration into implementation systems. They are a more economical alternative and a complement to the traditional tool of subsidy grants. There are possibilities for combining grants with new financial instruments. Depending on the area and extent of feasibility, financial instruments can be implemented in all the objectives of Cohesion Policy specified in the programmes for the 2014-2020 period with the aim of supporting those projects which demonstrate a sufficient rate of return.

Repayable financial instruments are not a completely new tool from the perspective of their existence within EU Cohesion Policy because the possibility of using them was already given in the 1994-1999 programming period. Nevertheless, their potential (which furthermore is far from being fully exploited because the ease and availability of grant funds makes them a logical preference for recipients) represents less than 3% of the volume of cohesion policy funds for this period (from a sum of 347 billion EUR for all EU member states; respectively about 5% of the resources of the European Regional Development Fund - ERDF, with a total allocation of 201 billion EUR). The existing content of the discussion (also in response to the current economic situation and the implementation of stabilizing to restrictive measures in the areas of fiscal policy and use of public resources) envisages strengthening the role of repayable financial instruments in the 2014-2020 programming period to approximately 10% of the amount allocated (thus within the EU there will be on average a more than threefold increase in the scope for repayable instruments; in the case of the Czech Republic the increase in this area will be even more substantial - the rate of their use in the Czech Republic now hovers around a low tenth of a percent of the allocation).

Three basic options exist for their use (the environments for the functioning and implementation of repayable financial instruments, administrative and absorption capacity, and level of technical and professional expertise for successful implementation vary significantly in individual Member States and their regions; against this background the regulations offer different options and variations for the use of repayable financial instruments from which the Member States and managing authorities may choose the most suitable solution flexibly and according to their needs):

1. Financial instruments set up at EU level and managed by the European Commission in line with the Financial Regulation (so-called direct management); under this option OP (Operational Programme) contributions to the repayable financial instruments will be earmarked for investment or intervention in the relevant regions and areas that fall under the jurisdiction of the OP from which the resources were contributed; in management and control the same rules apply as for financial instruments used under direct management.

2. Financial instruments set up at national or regional level managed in accordance with the common provisions in the Regulation and related secondary legislation (shared management); for instruments of this type managing authorities can contribute resources to:

- already existing or newly created instruments tailored to specific conditions and needs;

- standardized instruments (off-the-shelf) for which the conditions are pre-defined and laid down in a Commission Implementing Act. These instruments should be ready to use for a swift roll-out.

3. Financial instruments consisting solely of loans or guarantees may be implemented directly by managing authorities themselves; in such cases, managing authorities will be reimbursed on the basis of the actual loans provided or guarantee amounts committed for new loans, without the possibility to charge management costs or fees under the FI operation.

Scope for the use of financial instruments exists particularly in the following areas:

- *development of towns and cities, integrated territorial development, effective administration and institutions (acquisition of new or transformation of existing municipal services, real estate development, brownfield regeneration, etc.);*
- *increasing energy efficiency in residential and public buildings;*
- *support for social housing, combating poverty;*
- *support for the consequences of demographic developments and aging of the population (comprehensive health and social care for seniors);*
- *promotion of small and medium-sized businesses, innovation;*
- *effective labor market;*
- *mobility, availability of networks;*
- *environmental projects.*

The market for repayable resources from structural funds is practically non-existent in the Czech Republic today (there are only isolated cases). It is however very likely that this market will be constituted in the coming years with the participation of the following actors: **ministries, managing authorities** (their role is to incorporate repayable resources and financial instruments into Operational Programmes and the logic of intervention, set adequate performance indicators and outputs, prepare the implementation framework); **operators of holding funds** (involved in setting up the funds and their rules, providing expert assistance to managing authorities in the preparation of investment strategies, evaluating absorption capacity, organizing public procurement for the administrator, carrying out financial operations, monitoring); **operators of financial instruments** (with responsibility for identifying suitable projects ex-ante, creating project portfolios, preparing bids for administrators, preparing projects for financing, financing projects, carrying out financial operations, managing risk, monitoring, reporting); statutory **cities and regions; medium and small towns; businesses and business associations and communities**.

Typology of financial instruments: their comparison and evaluation

Cohesion	Chapter 1a.	Chapter 2.	EFSI
- Cohesion Policy funds serve as a direct source of financing for use of the financial instrument	- funds from the EU budget serve as a direct source of financing for use of the financial instrument	- funds from the EU budget serve as a direct source of financing for use of the financial instrument	- funds from the EU budget (and the EIB) are used to generate private investment, investment financed with national public funds (a financial instrument of the "new type")
- need to comply with the relevant Operational Programme	- very often individual solutions corresponding to the conditions of the relevant programme	- so far mostly pilot projects (testing for example synergies between cohesion policy and rural development)	- individual solutions
- effect tested by comparing with the subsidy instrument used for the same purpose	- effect tested primarily by the real benefit of each individual project	- effect tested by comparing with the subsidy instrument used for the same or similar purpose	- effect tested by the ability to induce private and public investment and not to deplete EU funding in the form of realized guarantees
- in the Czech Republic relatively the easiest way to set up a financial instrument	- access is determined by the ability to succeed in an EU-wide project competition	- still in draft form; relatively high potential for use in the Czech Republic	- large but in reality rather untapped potential (Česká spořitelna belongs among quite a few very active players in this field)

Source: own work

Smart City: examples of available financial instruments

Horizon 2020

This programme is an opportunity for cities and towns to establish cooperation with other entities abroad that are dealing with similar problems and are often already moving closer to solving them effectively.

In the Horizon 2020 programme, there is a very diverse typology of financial instruments which can be broadly divided into capital (equity) instruments with a range of risk financing options (Access to Risk Finance Programme), and risk sharing instruments (loans and guarantees). Collectively the EU instruments in the area of risk financing falling under the Horizon 2020 programme are called InnovFin (EU Finance for innovators) – with its individual components aimed at small and medium-sized enterprises (SMEs), small medium-sized businesses (up to 500 employees) moderately large firms (up to 3,000 employees) and large corporations (over 3,000 employees).

Moreover, within its framework there is also a component of thematic financing currently pursuing projects in energy and health (under the Societal Challenges priority within Horizon 2020). With regard to small and medium-sized enterprises, the possibility of granting specifically created guarantees and financing through venture capital exists. For moderately large firms (midcaps) the list of offerings also includes the option of guarantees and in addition the MidCap Growth Finance product, set up on a credit basis.

In the case of large corporations InnovFin Large Projects is also a typical loan product. In the Thematic Finance component there is use of project financing in combination with corporate loans. In addition the InnovFin product is also secured with financial and procedural advice.

The total scope of the financial instruments within Horizon 2020 amounts to approximately 2.7 billion EUR (thus approximately 3% of the total volume of the programme), of which 1.5 billion EUR is destined to benefit small and medium-sized enterprises.

Implementation of the instruments is carried out through the European Investment Bank (EIB) and the European Investment Fund (EIF).

- The EIB focuses on the segment of large and very large companies and on **providing guarantees to banks** as intermediaries for loans to these entities;
- The EIF **guarantees bank loans** to small and medium-sized enterprises and also invests in venture capital funds.

The European Commission, in cooperation with the EIF, has launched a new scheme to support innovative SMEs under InnovFin Equity – the target group is innovative enterprises in the pre-seed, seed and start-up phases.

InnovFin Equity includes 4 instruments:

- **InnovFin Technology Transfer (FF)** - supports technology transfer projects or technology rights. Its objective is to accelerate technological innovations and other objectives within the framework of Horizon 2020.
- **InnovFin Business Angels (BA)** - targets funds pooled by so-called business angels or business angel co-investment funds which invest into innovative early-stage enterprises and social enterprises (established or active) in participating countries operating in the sectors covered by Horizon 2020.
- **InnovFin Venture Capital (VC)** - targets investments into venture capital funds that provide funding to enterprises (including social enterprises) in their early stage operating in Horizon 2020 sectors. Via selected venture capital funds, EIF can provide risk capital financing to enterprises in their seed, start-up and other early stage phases of investment.
- **InnovFin Fund-of-Funds (FoF)** - targets investments into so-called funds of funds.

The InnovFin financial instruments complement the COSME financial instruments (see below).

Project example:

Project Triangulum *- Prague became involved in the project through the Prague Institute of Planning and Development. It succeeded in building on previous successful cooperation with the Fraunhofer-Institute, which is the coordinator of the project. The project focuses on creation of low-energy districts in cities, integrated infrastructure and sustainability of*

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urban mobility. The pilot solution created in the cities of Manchester, Eindhoven and Stavanger will be tested in the so-called follower cities - apart from Prague these are Leipzig and Sabadell. On the basis of the findings obtained Prague will develop its own plan for transformation of particular city districts.

Connecting Europe Facility

The Connecting Europe Facility (CEF) enables drawing of EU funds for the transport infrastructure of the Czech Republic. It is aimed at providing EU financial aid to trans-European networks to support projects of common interest in the sectors of transport, telecommunications and energy infrastructure and to utilize the potential synergies between these sectors. The programme is therefore divided into three sectors: CEF Transport, CEF Telecom and CEF Energy.

Most of the funding is intended for railway infrastructure projects located on the TEN-T network. Applicants may however also apply for support for cross-border projects for highways, security measures on the TEN-T network and inland waterway projects for the TEN-T.

In the framework of the Connecting Europe Facility (CEF), use of about 5% to 10% of allocations through financial instruments (i.e. in the range of approximately 1.5 to 2.5 billion EUR) is predicted, also having the character of instruments for risk sharing and capital solutions.

In the field of financial instruments the CEF can be considered as a promoter of solutions utilizing project bonds, which represent one of the most important instruments of this type.

Due to the nature of projects within the CEF (very large, long-term investment projects with cross-border character), they are developed within a framework of certain standardized model solutions, for example falling under the Marguerite Fund (in the case of solutions for energy projects). In addition, in the case of the transport component of CEF there is intensive use of guarantee instruments (Loan Guarantee Instrument for TEN Transport; LGTT).

Project example:

Network of ČEZ charging stations - *the project "EV Fast Charging Backbone Network Central Europe", for which ČEZ Electromobility, operator of the largest Czech domestic network of public charging stations for electric vehicles, received a grant from the European CEF programme. The project is being implemented in the period from February 2016 to December 2018. Its budget amounts to 2.315 million EUR of which support from EU sources will reach up to 1.968 million EUR.*

COSME

A programme for small and medium-sized enterprises (SMEs), which are an important part of the European economy - creating 85% of new jobs. Its budget for the 2014-2020 period amounts to 2.3 billion EUR and one of its main objectives is facilitating access to financing. For this purpose **two types of tools** are available:

- **A guarantee instrument** – the so-called Loan Guarantee Facility (LGF) - through this instrument the European Investment Fund offers guarantees (and counter-guarantees), including securitization of loans to financial institutions and funds which can provide loans to SMEs - thus it helps in providing loans to businesses that would otherwise not obtain them.
- **An equity instrument** – the so-called Equity Facility for Growth (EFG) - a means to support the growth and development of European businesses, particularly their development in the area of research and innovation. Applicants can be financial intermediaries managing and providing risk capital investments - investment funds, private investors. The EIF invests in selected funds providing venture and mezzanine capital to support the expansion of SMEs.

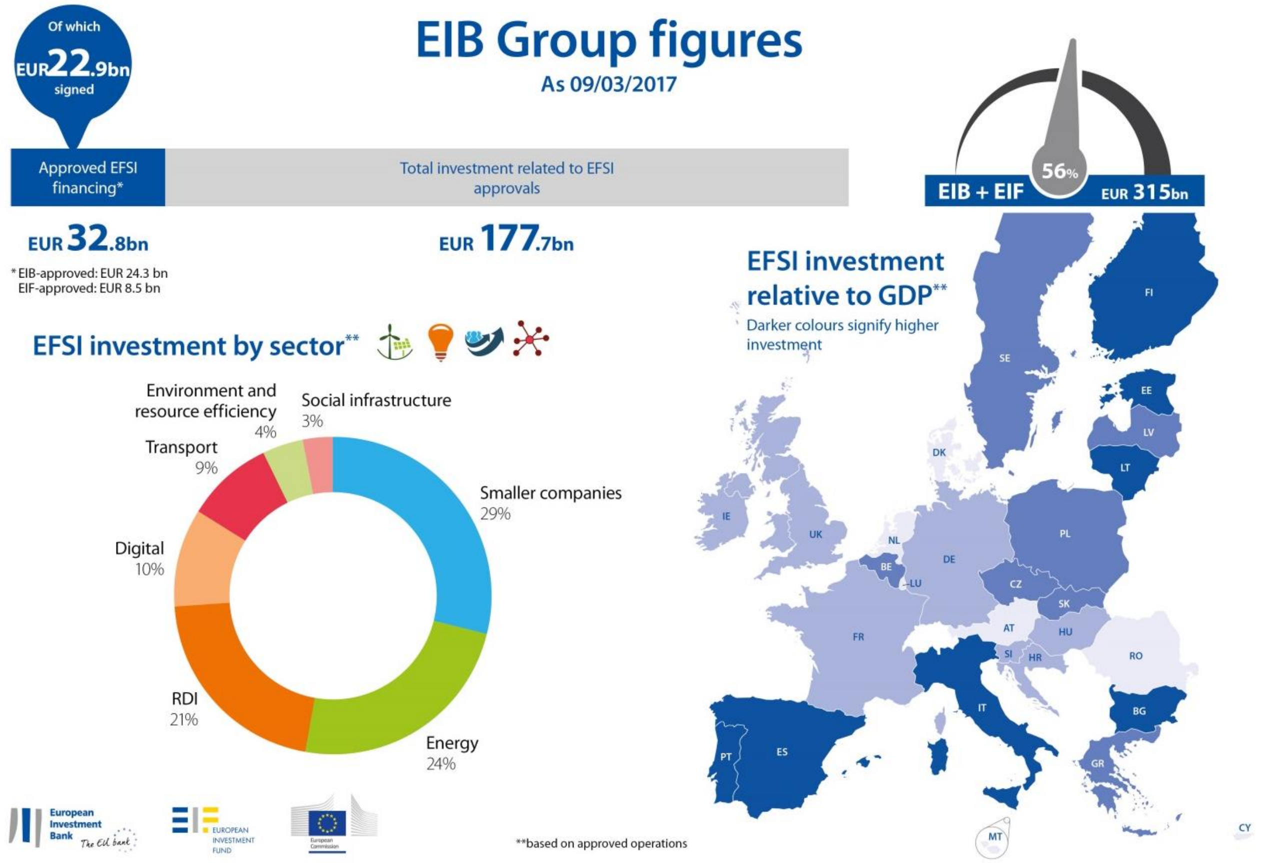
Investment Plan for Europe

This plan is the work of the European Commission, which proposed it in 2014 in connection with the low level of investment in the European Union - its aim is activation of both public and private investment (originally in the amount of at least 315 billion EUR; after the December extension of the functioning of the plan until 2020 the investment target was increased to 500 billion EUR).

The European Fund for Strategic Investments (ESFI) was set up as an independently managed account within the EIB – it uses public funds in order to activate additional private investment and ensures credit protection for financing provided by the EIB and EIF (European Investment Fund). One of its functions is transfer of risk from the European Investment Bank which can thus invest in riskier projects.

The fund is focused on investments in sectors such as infrastructure, energy, research and innovation, broadband networks and education (it can also support SMEs).

It was originally formed with a guarantee in the amount of 16 billion EUR from the EU budget and 5 billion EUR from the EIB - along with the extension of the functioning of the plan however, the EU Council also agreed to increase the guarantee from the EU budget to 26 billion EUR and to increase the EIB contribution to 7.5 billion EUR. A project portal is also available for potential investors, which provides information about individual projects and investment opportunities.



Source: EIB

In July 2015 **the Czech Republic** became one of the first countries in which a contract was signed on drawing funds from the EFSI – in March 2015 Česká spořitelna signed InnovFin, in July 2015 cooperation between the EIF and the Czech-Moravian Guarantee and Development Bank (within the framework of the COSME programme) on the basis of this agreement, it is possible to increase loans for small and medium enterprises in the Czech Republic by up to 4.4 billion crowns under the programme Warranty 2015-2023.

Access to credit varies depending on the size of the project. For projects worth roughly over 25 million EUR businesses can apply directly to the EIB for a loan with support from the EFSI fund. At present (to 6. 2. 2017) the Czech Republic **figures in four projects (one project is realised by Česká spořitelna)**. The list of projects is available on the EIB. The EIB supports smaller projects and companies through domestic banks. This form of support is doing slightly better in the Czech Republic - so far (as of 31. 1. 2017) 7 projects have been supported.

EIB ELENA

This is an instrument for grants for technical support - feasibility studies, market studies, energy audits and preparation of tendering procedures. It covers up to 90% of the technical costs of preparing large projects in the area of energy efficiency and renewable sources. It helps participants to obtain financing primarily from private sources. This programme is targeted at local and regional authorities or other public entities.

Among the areas that may be supported by the programme are for example public and private buildings (including social housing), street and traffic lighting in order to increase energy efficiency, public transport and local infrastructure, including smart grid, information and communication technology infrastructure and others. A complete list of supported projects is available on the website EIB ELENA.

Project example:

Municipal Efficiency - Light (ME - L) – *An Italian project where the recipient was Consorzio CEV. Its purpose was to support the development of investment in energy efficient public lighting in selected municipalities that are members of the Consorzio CEV aggregation. Among the main tasks of the project were for instance conducting an inventory of municipal public lighting and development of plans for public lighting in municipalities. The mobilized investments should be directed for example to replacement of obsolete and non-compliant lamps with high pressure sodium or LED lamps, installation of remote controlled systems and so on. The expected result should be to achieve savings of 23,509 MWh of electricity per year. More information here.*

European Energy Efficiency Fund (EEEF)

An innovative partnership of cooperation between the public and private sectors intended to mitigate climate change through measures in the areas of energy efficiency and use of renewable sources of energy in the European Union. The fund is primarily intended for local, regional and national institutions in the public sector.

The EEEF offers support through two types of investments:

- **Direct investment** - investment in projects for energy efficiency and renewable sources of energy in the amount of 5-25 million euros. They may be in the form of senior debt, mezzanine instruments, leasing structures and forfeiting loans. Equity (co-)investments are also possible.
- **Investments into financial institutions -** these include investments in local commercial banks, leasing companies and other selected financial institutions. Support is possible in the form of senior debt, subordinated debt or guarantees.

Resources for technical assistance are also available in connection with the preparation of projects. More information and a list of projects is on the webpage EEEF.

Project examples:

Public lighting in the Netherlands *– in 2014 the city of Venlo obtained funds in the amount of 8.5 mil EUR (senior debt) with a maturity of 15 years for modernization of public lighting - equipment of about 16,000 lamps with LED bulbs (73% of the total lighting points and lights in the city). This was the first direct lending to a municipality by EEEF.*

Carsharing in France *- the French company Bolloré received support from the fund in 2013 amounting to 30 million EUR. (In the form of senior debt) with a period of maturity of 5 years. The funds were used to finance electric vehicles and infrastructure (e.g. charging stations, parking places).*

The 2007-2013 period as a successful model

A significant part of future EU financing from public sources is increasingly associated with financial instruments. The 2007-2013 period in fact represented **the first period of time during which the extent of use of these instruments visibly increased**, even though these were still in the overwhelming minority compared to the traditional subsidy principle. At the same time, the 2007-2013 period presented the first opportunity to evaluate the results to date of the implementation of financial instruments on the performance of cohesion policy and simultaneously to also make explicit references to certain illustrative case studies (in the text below specifically targeted at the broadly interpreted concept of Smart Cities). If financial instruments are to fulfill their potential during the delayed 2014-2020 period and in particular if their importance will continue to increase substantially during the third decade of this millennium, it is necessary to incorporate these findings into a strategy that will help ensure this.

During the 2007-2013 period almost all EU Member States started using financial instruments (with the exception of Ireland, Luxembourg and Croatia, which joined the EU six months before the nominal but not the actual end of the programming period). Nevertheless even with this seemingly broad coverage, the relative significance of financial instruments, chosen implementation models and also economic and political objectives differed considerably among individual Member States. Surprisingly it is very difficult to find any distinct unifying feature among them. Compared to the absolute volume of commitments at the national level, four member states (Greece, Germany, Italy and Great Britain) were able to utilize 56% of the commitments of the Operational Programmes pertaining to financial instruments, while in Italy alone this share amounted to almost a quarter. The differences between countries can be attributed partly to the different sizes of the Member States and the overall extent of cohesion funding but also represent a qualitative reflection on choices of economic policy and existing domestic practice.

In most of the featured case studies below financial instruments strengthened the performance of Cohesion Policy in achieving objectives and results when compared with subsidies. This observation stems from their revolving nature, which is seen as a positive factor not only because of the market test of the return on the project, but also from a fiscal point of view, when a number of Member States are facing the problem of very tight budget positions.

In the previous phase the expected long-term positive effects can also be contrasted with some momentary negatives such as for example low disbursement rates and the generally low rate of return. One of the key reasons for this situation was that funds were "parked" in holding funds rather than being recognized as drawn and countries thus avoided the risk of *decommitment* and funds did not quickly reach who they should - the final beneficiaries.

In light of limited financing based on the subsidy principle, more increase in the use of financial instruments both in Cohesion Policy and in other parts of the EU budget seems inevitable. But the realization of further decisive progress in the use of financial instruments no longer depends solely on the lessons from the previous period, improving implementation and eliminating certain shortcomings in the focus of financial instruments. A qualitative new need for access to them is being opened, including methods of allocation, use and eligibility justifying their existence based on proven performance and documented examples of best practice. Flexible mastery in using financial instruments is absolutely crucial for achieving the objectives of Cohesion Policy and other activities carried out and financed from the EU budget. Greater flexibility in the implementation process also requires transfers of funds to where they are most needed, which again the principle of subsidies does not facilitate to the desired extent.

Financial instruments represent a very wide range of different types of tools. Assessment of the performance of these instruments and decisions on their use for specifically defined projects or economic policy objectives therefore require detailed analysis on a case by case basis, relative to evaluating the needs of specific regional economies and/or target groups.

Why should appropriate use of financial instruments provide added value in the utilization of EU public funds?

1. **They are designed to effectively address cases of market failure with regard to availability of capital** - publicly supported financial instruments are a legitimate solution for at least two types of market failure: one is asymmetric information (when certain types of projects, such as start-ups or new firms in the high-tech sector, have limited possibilities because of lack of a business track record assessing their risks); the second is that commercial evaluation of return does not always necessarily include all positive externalities and wider social benefits. For example, inadequate access to finance may limit investment into research and development or innovation and lead to sub-optimal investment in new technologies that could otherwise bring wider social benefits. Likewise projects in urban development or energy efficiency provide long-term social benefits which meet the rationale for public intervention but would not be attractive enough for only private funding. This may be even more evident in the case of very small projects requiring microfinance or social enterprise projects.
2. **Economic policymakers can legitimately argue that repayable instruments are more favorably equipped to improve the quality of investments**, fulfilling the public interest (compared with those that are supported by subsidies) because the obligation to repay the investment shifts perceptions towards projects in which the due diligence process and commercially focused expertise explicitly identify the element of returns. Both of these elements can significantly advance the viability of projects in comparison with the variant of subsidy support.
3. **Creators of economic policy can also take into consideration that use of financial instruments increases the cost-effectiveness of public resources** since repayments, including interest and dividends (or unspent resources from guarantees) create a long-term revolving source which can be subsequently reinvested. The effect of this activity can be further divided into microeconomic and macroeconomic. In the first case this ensures sufficient liquidity and an accessible amount of very flexible usable resources from the perspective of the applicant; in the second case in the context of structural, macroeconomic and fiscal policies, it fundamentally facilitates and contributes to achievement of their long-term strategic objectives.

In the 2007-2013 financial perspective there were three types of options for which it was possible to use financial instruments within the framework of Cohesion Policy (while in other chapters of the budget these possibilities were even more limited) with the vast majority of funds used for development of the business sector - over 92% (of which 49% were in the form of loans, 21.4% in the form of guarantees and 19.3% in the form of direct capital investment; approximately 2.5% then fell into different categories which were mostly different combinations of the previous ones). **In second place with an enormous gap stood urban development projects** (in total almost 5.5%, of which over 5% were loans and 0.4% direct capital investment). **The smallest share was energy projects**, for which possibilities in the area of financial instruments opened with a delay (their share reached less than 2.4%; 2.3% went to loans and a negligible share to guarantees and direct capital investment.

The following overview of case studies thematically focused on a broader interpretation of the concept of Smart Cities, shows very individual solutions for each project presented and varied architecture of financial instruments and their selection.

1. Spain (Andalusia)

Of all the featured examples this is the **most complex**, linking solutions within both the JEREMIE and JESSICA schemes (in the first case under the Priority Axis 'Innovation and the Knowledge Economy'; in the second under 'Sustainable Local and Urban Development') with financing from the regional OP Andalusia. **This case is typical of a very complex approach to the Smart Cities concept in terms of both urban and energy efficiency (within the components covered by the JESSICA scheme) and also in the development of small and medium-sized enterprises (JEREMIE)**. The structure of this financial instrument, which fully utilizes regional knowledge and competence, is also interesting. The regional development and innovation agency IDEA plays the role of holding fund (HF), respectively a specially established unit within this agency in collaboration with two public financial institutions, INVERCARIA and SOPREA. Two other specific funds (for sustainable building and energy) were added to this structure, both managed by private banks. Within the JESSICA scheme two of the holding funds used in Andalusia were managed by the European Investment Bank (EIB). First an Urban Fund, which is divided into two Urban Development Funds (UDF), providing loans, equity and quasi-equity for urban projects that are part of the integrated plan for sustainable urban development. Second the Energy Saving and Diversification Investment Fund (FIDAE), offering mainly loans and also venture capital and quasi-equity.

The entire structure of this comprehensive solution can be seen in the following table:

Financial Instrument	Financial product	Target	OP contribution paid to FIs (mln EUR)	OP contribution invested in final recipients (mln EUR)
JEREMIE (HF)				
Venture Capital Fund	venture capital	enterprises	50.0	
Multi-instrument Fund	Loan, guarantees, quasi-equity	enterprises	185.7	
Sustainable construction	Loan	enterprises	50.0	
Energy	loan	enterprises	93.3	
JESSICA (Andalusie)				
Urban	Loan, equity, quasi-equity	Public-private partnerships, private sector, public sector	85.7	42.6
JESSICA (FIDAE)				
FIDAE (Energy)	Loan, venture capital, quasi-equity	Public-private partnerships	92.6	78.3

2. Italy (4 convergence regions - Calabria, Campania, Sicilia, Puglia)

This solution was used to support renewable energy, energy efficiency, research associated with this and promotion of competitiveness. Unlike the previous solution holding funds did not figure in this, but rather nine specific funds were established (five of them founded and controlled by the Italian Ministry for Economic Development), three by the Italian agency for attraction of foreign investments (Invitalia Spa) and one banking group Mediocredito Centrale Spa. Mediocredito Centrale Spa was the only fund that passed through a public tender; all others were established within the context of in-house solutions. In contrast to the previous Spanish example, here subsidized loans (whose development will very likely continue to be supported in terms of strengthening synergies between grants and financial instruments) and guarantees played a dominant role. **This case also differs from the previous in the fact that the vast majority of the beneficiaries are private entities which are contracters involved in solutions to Smart Cities projects.** It is also noteworthy that there is also a high degree of connection with OP funds invested in financial instruments and allocated directly to final beneficiaries.

A diagram of the layout of this financial instrument is shown in the table below:

Financial Instrument	Financial product	Target	OP contribution paid to FIs (mln EUR)	OP contribution invested in final recipients (mln EUR)
Revolving fund	Subsidised loan	SMEs and larger companies	202	39.4

Revolving fund – development contracts	Subsidised loan	Larger investments and RDI	95	17.2
Fond innovations	Subsidised loan	SMEs, mainly concerned with innovative development projects	95	31.6
Fond FIT-PIA	Subsidised loan	Innovative projects	90.5	17.3
Revolving fund 185/2000	Subsidised loan	Self-employed	33	18.4
PON guarantee fund	guarantee	SMEs	550	311.2
Start up	Subsidised loan	SMEs, mainly concerned with innovative development projects	5	1.6
Reach	Subsidised loan	SMEs, mainly concerned with innovative development projects	10	4.0
Factual analysis	Subsidised loan	SMEs, mainly concerned with innovative development projects	45	14.6

3. Poland (Pomorskie)

The financial instrument in the Polish region of Pomorskie focuses on urban and regional infrastructure, competitiveness, innovation, revitalization of urban centers and support for disadvantaged areas. This financial instrument within the JESSICA and JEREMIE schemes has a total of 130 million EUR, which represents 10% of the allocation of the regional OP Pomorskie that created the financial instrument. Even in its architecture it is apparent that priority is given to national and regional solutions, enabling it to better address the needs of the region concerned. The dominant types of financial instruments in this case are loans and guarantees and in the minority there is also direct capital investment. The solution applied in the Polish region of Pomorskie relies on two holding funds (one for the JESSICA scheme, the second for JEREMIE). In the case of JEREMIE the Polish state bank BGK is the manager of the holding fund, in the second case the EIB manages the holding fund directly and BGK is the manager of the UDF (Urban Development Fund).

Financial Instrument	Financial product	Target	OP contribution paid to FIs (mln EUR)	OP contribution invested in final recipients (mln EUR)
JEREMIE Access to finance for SMEs (HF)			**70.32**	
Czersk Cooperative Bank (SHF)	loans	SMEs	4.89	4.89
Pomorskie Loan Fund, Gdansk (SHF)	loans	SMEs	19.63	19.63
Pomorskie Regional Credit Guarantee Fund, Gdansk (SHF)	guarantees	SMEs	9.90	17.43
Regional Investment Society (SHF)	guarantees	SMEs	6.73	9.93
Centre for economic development, Paslek (SHF)	loans	SMEs	2.45	2.45
Society for Social and Economic Investment (SHF)	loans	SMEs	7.34	7.34
Wisla Development Company (SHF)	loans	SMEs	1.71	1.25
Black Rose Finance (SHF)	loans	SMEs	0.49	0.03
FM Bank PBP (SHF)	guarantees	SMEs	2.27	2.84
Idea bank (SHF)	loans	SMEs	2.45	2.45
IKB Leasing (SHF)	loans	SMEs	1.31	1.27
Micro Initiative (SHF)	loans	SMEs	2.45	2.45

Kaszubski Enterprise Fund (SHF)	loans	SMEs	2.08	1.84
Polfund Credit Guarantee Fund (SHF)	guarantees	SMEs	1.71	3.67
Polish Entrepreneurs Foundation, Szczecin (SHF)	loans	SMEs	13.45	12.33
JEREMIE Seed Capital Fund, Pomorskie Region (SHF)	equity	SMEs	1.20	
JESSICA Urban projects (HF)		SMEs	**59.02**	
UDF Warsaw (SHF)	loans	Urban projects	58.03	48.73
Pomorskie Loan Fund Limited Liability Company, Gdansk (NHF)	loans	SMEs	4.09	4.09
Regional Investment Society SA, Dzierzgon (NHF)	loans	SMEs	1.25	1.25
Slupskie Association of Economis Innovation and Entrepreneuship (NHF)	loans	SMEs	2.77	2.77

Smart City Česká spořitelna

Helps cities and companies prepare and finance innovative projects that make cities and towns better and modern places to live.

The project is primarily focused on 132 Czech towns with more than 10,000 inhabitants with some solutions that can also be applied in smaller municipalities. By 2020 the volume of investments into Smart City projects will reach 100 billion CZK - these investments are directed mainly at innovation in the areas of ***government, energy, security, housing, waste and transport****. The role of Česká spořitelna is to be a mediator* ***between cities and towns*** *(buyers of smart solutions)* ***and firms*** *(suppliers of smart solutions), which helps both parties with the preparation and realization of projects from design through optimization of solutions to assistance in finding a suitable method of financing. More information can be found on the webpage of the project.*

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