



dRural

D6.1 1st delivery of dRural methodological framework for impact measurement

Developing a Comprehensive Methodology towards Impact Measurement in European Regions (vs 2.0)

WP6 D6.1

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Abstract

This deliverable (D6.1) describes the development of a methodological approach for impact measurement in a period of four months (task T6.1, M1-4). Key-outcome is the **dRural impact measurement framework (dIM)** that draws on six capitals to assess economic and social progress in

(*) PU = Public; PP = Restricted to other programme participants (including the Commission Services); RE = Restricted to a group specified by the consortium (including the Commission Services); CO = Confidential, only for members of the consortium (including the Commission Services)



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D6.1. 1st delivery of dRural methodological framework for impact measurement (dIM)

European regions: i.e., economic capital, natural capital, human capital, community capital, network capital and reputation capital. We chose to start with identifying overarching capitals in order ensure the creation of a complete picture of impact – especially with respect to the social dimension of impact – when identifying and grouping key performance indicators. In this way we hope to improve upon current ways of measuring economic and social progress in European regions and motivate academics and practitioners to engage in the debate from a shared perspective.

Disclaimer

The opinions expressed and arguments employed in this document do not necessarily reflect the official view from the European Union and other dRural consortium partners. Responsibility with the views and data expressed therein lies entirely with the authors.

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Table of contents

Executive summary	1
1. Development of the dIM.....	1
1.1. Purpose of WP6 in dRural and key-outcome of D6.1	1
1.2. Guiding principles	2
1.3. Steps taken in the development process	2
2. Substantial background	4
2.1. Explaining the dRural Impact Measurement capitals	4
2.1.1. Economic capital	4
2.1.2. Natural capital.....	4
2.1.3. Human capital	5
2.1.4. Community capital.....	5
2.1.5. Network capital	6
2.1.6. Reputation capital.....	6
2.2. Framework levels and layers.....	7
2.3. Relation to other EU impact measurement frameworks	10
3. Outlook.....	12
4. References	13
5. Appendix	14
5.1. Appendix 1: Comparison with AURORAL	14
5.2. Appendix 2: Comparison with LORDI.....	15

List of Tables

Table 1: Examples of indicators themes targeted to specific capital-layer relationships.....	10
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List of Figures

Figure 1: The dRural impact measurement framework (dIM).....2

Figure 2. Different levels and examples of metrics relevant to impact measurement in dRural.....8

Figure 3. Different layers relevant to dRural.....9



Executive summary

In the Horizon 2020 Programme (H2020), the European Commission calls ‘to boost rural economies through cross-sector digital service platform’. The dRural consortium answers this call in a joint effort to improve the economic and societal welfare in rural areas. The goal of dRural is the deployment of a digital service marketplace that delivers multiple services to rural citizens in European areas, starting with four pilot regions (regional demonstrators) of Dubrovnik-Neretva (Croatia), Extremadura (Spain), Gelderland-Midden (the Netherlands) and Jämtland-Härjedalen (Sweden).

This deliverable (D6.1) describes the development of a methodological approach for impact measurement in a period of four months (task T6.1, M1-4). Key-outcome is the **dRural impact measurement framework (dIM)** that draws on six capitals to assess economic and social progress in European regions: i.e., economic capital, natural capital, human capital, community capital, network capital and reputation capital. We chose to start with identifying overarching capitals in order ensure the creation of a complete picture of impact – especially with respect to the social dimension of impact – when identifying and grouping key performance indicators. In this way we hope to improve upon current ways of measuring economic and social progress in European regions and motivate academics and practitioners to engage in the debate from a shared perspective.

Section 1 introduces the key-outcome of D6.1 – the dIM – while giving a short outline of the contextual background of dRural and WP6 in general, as well as the underlying motives, conceptual underpinnings, and steps taken towards its development. Section 2 provides a more detailed explanation of the dIM and its specific capitals while also providing examples of indicators the capitals could include. Also, finetuning by using levels and vertical layers as a basis towards KPI grouping and further operationalization is discussed. Next, we analyse synergies and differences with a number of used EU approaches on impact measurement. Finally, in section 3, an outlook on next steps in WP6 is given.

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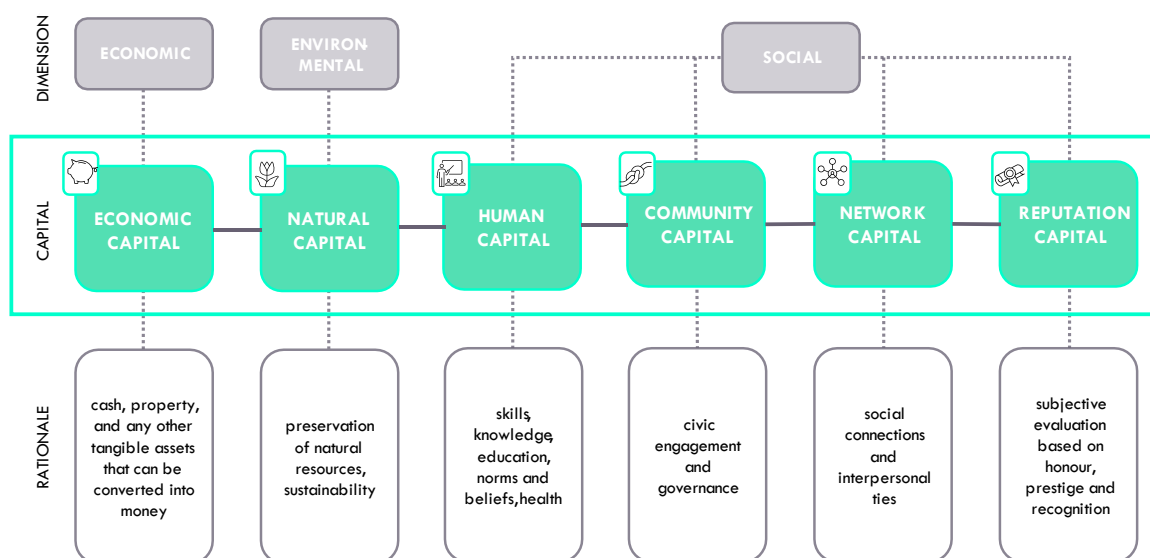
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1. Development of the dIM

1.1. Purpose of WP6 in dRural and key-outcome of D6.1

As part of the European Commission's Horizon Framework Programme 2020 (H2020) grant on 'boost[ing] rural economies through cross-sector digital service platforms'², dRural is a three-year initiative (01/2021-06/2024) proposing the solution of a digital service platform that delivers multiple services to rural citizens while creating opportunities of economic growth and quality of life improvements. Main objectives of dRural are to (i) boost economic performance and unlock companies' innovation potential (i.e., in terms of SME digitalisation); (ii) create better linkages for rural citizens to markets, people, and public services; (iii) galvanize rural community involvement to meet European priorities such as the European Green Deal³. To ensure successful deployment and sustainability after the project's lifetime, dRural will be first rolled-out in four pilot regions (called *regional demonstrators*): Dubrovnik-Neretva (Croatia), Extremadura (Spain), Gelderland-Midden (the Netherlands) and Jämtland-Härjedalen (Sweden).

Work package 6 (WP6) on impact evaluation aims to strengthen dRural's competitiveness and growth by developing, monitoring, and evaluating KPIs that provide a strong basis for evidenced-based policy-advice, improvement over time, and comparisons across regions. This requires a careful thought on what indicators will be critical to achieve the desired outcomes at both the organisational-solution level and the societal-region level. The purpose of deliverable D6.1 is therefore to set-up a methodological framework for impact measurement that serves as basis to later WP6 activities on the operationalization (D6.2) and assessment (D6.3) of KPIs. This report is limited to the activities undertaken and decisions made to the outcome of D6.1: the **dRural impact measurement framework (dIM) (Figure 1)**.



² European Commission (2020) Funding & tenders (europa.eu)

³ European Commission (2021) A European Green Deal | European Commission (europa.eu)



Figure 1: The dRural impact measurement framework (dIM)

1.2. Guiding principles

The main objective of T6.1, as stated in the research proposal, is the setting-up an overarching framework. Nonetheless, our ambition is higher. Via the dIM, we attempt to provide a starting point towards overarching impact measurement that we believe is broad-based and flexible enough to be applied in various contexts and initiatives across European regions. The idea is that the dIM could be used to identify gaps in existing measurement frameworks and practices, and to provide its members with opportunities for learning, guidance, and support, leading to the maximization of impacts.

Various publications under the OECD-hosted High-Level Group on the Measurement of Economic Performance and Social Progress (HLEG)⁴ (also known as the *Stiglitz-Sen-Fitoussi Commission*) have supported us in our decision to develop an overarching measurement framework based on capitals. Particular the works of Stiglitz, Fitoussi and Durand (2018a) and Stiglitz et al., (2018b), in which they had been advocating for the development of indicators that are more inclusive of economic, environmental, and social aspects of progress. It has been suggested that “(...) one way to integrate these multiple strands into a holistic approach to the measurement of economic performance and social progress is to adopt a systems viewpoint to complement the capital approach and deal with the many interactions at play” (Stiglitz, Fitoussi and Durand, 2018b, p. 4). This means that impact measurement frameworks should consider how societies use their resources (i.e., capitals) as well as their behaviour over time and the inter-relationships between economy, society, and nature (i.e., systems). Stimulated by this recommendation as well as dRural’s underlying H2020 grant’s call to develop means to describe economic and social progress, a comprehensive approach based on capitals was felt to be particularly effective. It takes into account resources required to ensuring individual and societal well-being. These resources include both physical resources such as water, air, and soil, but also intangible resources such as knowledge or the quality of social relationships. The notion of capital therefore reflects more than cash or other financial assets (de Smedt, Giovannini and Radermacher, 2018).

1.3. Steps taken in the development process

Our information search activities were mainly based on desk-search of existing literature on the measurement of various capitals in society. As mentioned earlier, the capital approach was chosen as conceptual underpinning towards impact measurement as it offers a wide viewpoint on economic and social progress as accrued value, with well-being the major outcome (De Smedt et al., 2018). To put it simple, capitals are measuring the factors (various forms of tangible and intangible resources) that contributed to producing those outcomes. This also means that ensuring economic and social progress and well-being over time requires preserving capitals needed by future generations. As a result, the dIM draws upon various schools on capital, mainly on the works and conceptualisations from Bourdieu (1986) on social capital (in the dIM referred to as ‘network capital’), economic, cultural (‘human capital’) and symbolic capital (‘reputation capital’). In addition, we built on the works and conceptualisations from Putnam (2000) on social capital (‘community capital’) as well as Barbier (2014; 2019) on natural capital. Some notions have been relabelled by the authors to provide a better understanding of their specific meaning in the dIM, to differentiate them more easily, and to stick to notions frequently used in accounting practice.

⁴ HLEG (2021) [Measurement of Economic Performance and Social Progress - OECD](#)



Concretely, we took 5 steps in the methodological development of the dIM:

- Review and synthesize academic literature on capitals measuring impact.
- Compare and revise our framework based on a comparative analysis with existing impact measurement frameworks (especially those of H2020 initiatives).
- Allocate a selected number of KPIs to framework categories to evaluate appropriateness and if relevant types of KPIs are covered.
- Develop more fine-grained measurement by distinguishing multiple layers of impact beyond the organisational and societal level; and
- Map demonstrator regions' priorities on our framework to evaluate accommodation of variety in regional priorities.

For each step, results were shared in internal meetings with dRural WP6 partners, leading to the inclusion of additional existing EU impact measurement frameworks and finetuning of the categorisation. Three main conclusions were reached in these discussions. First, existing impact measurement frameworks either overemphasize technology and/or separate social and technological dimensions. Since technology facilitates and intermediates more and more interactions, we decided to incorporate technology as a layer cross-cutting all categories instead of creating a separate technology category. Second, to show the relation with existing (EU) frameworks more clearly, we clustered our categories in three overarching dimensions that are most often used: economic, environmental, and social. In this way, we can measure social impact in a more diverse manner while still explicitly relating to existing frameworks and accounting practices. Third, we chose to drop specific academic labels in favour of those more resonating with practice to increase comprehensibility for all involved parties. Finally, our approach to impact measurement was also shared with AURORAL impact measurement team in three separate meetings, to create best practice sharing and a certain level of interoperability between the two projects. The resulting selection of capitals and their relative descriptions are depicted in **Figure 1** as the **key results** of this report.



2. Substantial background

2.1. Explaining the dRural Impact Measurement capitals

The dIM attempts to provide a multidimensional and comprehensive approach to measure economic and social progress in European regions based on six form capitals presented. It explores how individuals or societies are making choices based on the number of resources (i.e., capitals) they have. As a rule of thumb, the larger the amount in capital, the more opportunities, and advantages. This raises attention to the possible conflicts generated by unequal distribution of capitals among individuals, regions, and societies at large, that lead to inequalities and power dynamics. This can for example be seen in the urban-rural divide, with rural citizens on average lagging behind in digitisation as they lack access to high-speed Internet due to outdated broadband. It also sheds light on the many interactions at play that determine social and economic progress. Another basic premise is that society should not consume more capital than it can produce, as such the level of capital for the future is greater. It therefore has strong links to well-being, which can come in several forms affecting different parts of life and in turn requires taking a broad view of capitals (Stiglitz et al., 2018a). Drawing on extant theory, we propose that a comprehensive consideration of economic, natural, human, community, network, and reputation capital is best suited to explore the various forces and interactions at play.

2.1.1. Economic capital

Economic capital under the economic dimension deals with cash, property and any other tangible assets that can be converted into money. It can be defined as materialistic assets that are ‘immediately and directly convertible into money and may be institutionalized in the form of property rights’ (Bourdieu, 1986, p. 242). This capital is mainly based upon Bourdieu (1986) who attempts to explain social status and power dynamics in society. Accordingly, economic capital is one of the driving forces among with social and cultural capital that determines inequalities. It provides people with advantage and opportunities, for example in terms of access to private healthcare, elite education, and so on. In turn, economic capital can be transferred into other forms of capital, as will be seen in section 2.1.3. Bourdieu provides a cornerstone to understanding inequalities from a sociology viewpoint, but it is also crucial, argue the authors, to give importance to the ‘economic’ nature of economic capital essential to market production. A plethora of measures on economic performance has been offered (Stiglitz, Fitoussi and Durand, 2018b). We chose to build on Stiglitz, Sen and Fitoussi (2009) who provide a complementary perspective that acknowledges the importance of produced (man-made) financial assets but shift emphasis to people’s well-being. Drawing upon these accounts, economic capital in the dIM gives prominence to material living standards (e.g., income, consumption, and wealth) as well as personal and market activities including labour and business processes. From a dRural perspective, this touches upon ambitions to spark market opportunities in rural areas, that are further leading to companies’ growth and strengthening competitiveness. Examples of thematic indicators may be evolved around market activities and business model that enable companies to capitalise digitisation, or to achieve enabling economies of scale, but also more generally in terms of GDP, jobs and earnings, access to housing, level of household income and consumption, living standards, and so forth.

2.1.2. Natural capital

Natural capital falls under the environmental dimension and deals with all kinds of natural resources that can be institutionalized in the forms of environmental assets. Natural capital is defined as an asset to environmental sustainability, economic prosperity and well-being through the sustainable use and perseveration of natural resources (Barbier, 2014). This capital mainly draws upon Barbier (2014; 2019) who, unlike others, considers environmental costs in terms of natural loss (e.g., clearing of woods



and forests, overfishing, etc.). His argument is that social and economic performance, and well-being in particular, are not only shaped by natural resources as input factors. Rather, their preservation and loss brought about by climate change and environmental degradation should also be taken into account. Indicators that would not include depletion and degradation of natural resources would be misleading. This view resonates well with Costanza et al. (2014) who raised a similar point, as well as the European Green Deal⁵ which seeks to make EU's economy more sustainable – an initiative to which dRural also aims to contribute to. Respectively, natural capital in the dIM considers how societies make use of their natural resources (as input factors), but also what activities have been taken to achieve objectives from initiatives such as the Green Deal from which they obtain benefits. Examples of thematic indicators can include levels of stocks (e.g., forestry, livestock, minerals, etc.), measures of environmental quality (e.g., water quality, air quality, etc.), but also the processes (e.g., resource-efficiency, climate regulation, water purification, etc.).

2.1.3. Human capital

Human capital falls under the social dimension and deals with skills, knowledge, education, norms and beliefs, and health. It can be defined as cognitive and physical resources and may be institutionalized as educational and other meritocratic qualifications (Bourdieu, 1986). This capital again draws on Bourdieu (1986) whose original conceptualisation was cultural capital. We relabelled it into human capital as we also incorporated other elements of human capital beyond Bourdieu's perspective which are discussed below. According to Bourdieu, it serves as knowledge currency which alters people's experiences and opportunities available. Different to economic capital, human capital is not necessarily about having money, but has strong links as it can be exchanged with money that in turn helps to earn more human capital as described in 2.1.1. To provide a simplistic example: education is key to finding better jobs, better jobs are key to receiving more money, more money increases access to higher education. It can be also used to indicate social class based on a person possessing certain material items are carrying certain amount of prestige and are an expression of greater capital, for example wearing a luxury watch or buying organic food only. For dRural, this touches upon the objective to integrate tailored digital technologies that better serve the local communities' needs and facilitating equal access to services on the platform using various languages to ensure that nobody is left behind and to overcome the digital divide. We also incorporated additional cognitive and physical abilities into our perspective, as these are directly influencing one's labour-power (e.g., Becker, 1985; Nahapiet & Ghoshal, 1998). Also, we included health, which can be seen as important itself to people's well-being in terms of physical and mental health, but also to allow them to pursue activities that contribute to their well-being. Becker (2007) found that education and skills can matter to people's decision to devote their time to leisure, personal care and so on to promote a healthy life. Examples of thematic indicators can include education, intellect, competencies, cognitive abilities, health-status, but also activities such as cure or care from which people benefit in terms of mental or physical well-being and allow them to perform labour so as produce value to the market.

2.1.4. Community capital

Community capital falls under the social dimension and deals with civic engagement and governance. It can be defined as surrogate measures that serve communities' social capital and may be institutionalized in the form of non-profit organizations and democratic arrangements (Putnam, 2000). This capital draws upon Putnam (2000) whose original conceptualisation was 'social capital' which we relabelled into community capital to distinguish more clearly from Bourdieu's conceptualisation of social (Bourdieu, 1986) which is described in section 2.1.5. The notion of community capital was chosen as

⁵ European Commission (2021) [A European Green Deal](#) | [European Commission \(europa.eu\)](#)



Putnam compared to Bourdieu puts stronger emphasis on the community-as-a-whole instead of describing the number and strength of individual network connections. Specifically, Putnam widely recognizes that social connections can utilize well-being in of individuals but also for communities at large, for example via the participation in non-profit organisations and alike. The premise is that people invest in social relations to expect returns in the marketplace (Lin, 2002). The specific question Putnam raises in terms of civic engagement is whether people are dedicating themselves for the common good or for the beneficiary of themselves given the rational choice theory considering people as selfish utility maximisers and being *homo economicus* (Coleman and Fararo, 1992). According to Putnam's accounts, if actions are governed by social norms, people are less likely to be distrustful of their motives. For dRural, this provides an important viewpoint as it can be explored when and how people contribute to initiatives that affect their lives and well-being, for instance in terms of the European Green Deal. Similarly, governance is considered as it allows people to turn their voices into policies. Examples of thematic indicators can include voting, volunteering, active memberships in a non/profit organisation or other charities, but also motives behind volunteering, mutual trust among community members, and the relative importance of regional policies that may vary due to the different norms at play.

2.1.5. Network capital

Network capital falls under the social dimension and deals with social connections and interpersonal ties. It can be defined as property not only of social groups but individuals, which can be institutionalised through personal relationships networks and through individual titles or functions within specific networks (Bourdieu, 1986). This capital again builds on Bourdieu (1986) whose original notion was 'social capital'. As mentioned in the previous section, we relabelled this notion to help distinguish from Putnam (2000), and from the dIM's dimension on community capital, respectively. Bourdieu (1986)

uses this form of capital next to main aspects of social life and suggests that networks play an important part in this role. For him, what exists in the social world are the number of relations an individual has. Accordingly, people accumulate resources through interpersonal ties that are mobilised when necessary, for example in finding a job. In turn, however, they may only provide resources for example in terms of support when they feel they would be rewarded. In contemporary language, this implies that it is all about 'having connections', 'knowing the right people' and 'being in the right position' to maximize power. From a dRural perspective, this invites us to explore communities at a more individual level, to understand of how networks matter for economic performance and well-being. Examples on thematic indicators can include the number of connections in a market, the duration of relationships, knowledge about or closeness with relationships, or the frequency of interactions.

2.1.6. Reputation capital

Reputational capital falls under the social dimension and deals with the subjective evaluation of other capitals based on honour, prestige, and recognition. It can be defined as the shared and thus 'intersubjectively objectified' appreciation of the other capitals that may be institutionalized as granted awards (Bourdieu, 1986). This capital is also derived from Bourdieu (1986). We relabelled his original notion of symbolic capital into reputation capital as we consider this better reflects its concept in contemporary language. Following Bourdieu, reputation capital does not exist at the same level as the other capitals but can be considered as a sub-form instead. It is the value indicating the recognition and legitimation of other forms of capital. To put it differently, reputational capital reflects the amount of prestige an individual or organisation has in terms of a reputation for competence and an image of respectability and honourability. This provides an important angle for dRural, as it sets the boundaries to mobilize and pursue change within society. This means that people tend to put weight or value to objects or subjects according to their own preference and interests, but also to the common beliefs of a social group they belong to. Taking the example of a master's degree, this may be



generally connected with some prestige and value, but probably of less importance for manufacturing companies seeking craftsman. Similarly, political opinions and voting can be largely shaped by social classes where people consider themselves to (Evans, 2000). This provides an important link to dRural and business practice in general, as the most innovative services may not gain anything when they are not perceived of value (Levitt and List, 2007). Through that we can also see the link to reputation management in practice with related concepts of image, identity, and branding. From marketing theory, for example, we learned that the smaller the gap between image and identity, the more long-term sustainable a reputation will be (Chernatony, 1999). Drawing on these perspectives, we aim to connect regional strategies as stated in regional policy agendas such as RIS3⁶ to include thematic profiles and priorities per region and to explore possible gaps between objective and subjective performance. Likewise, we aim to explore needs and preferences at a more individual level. Examples on thematic indicators can include how people feel about their life and community, what is important to them, e.g., subjective well-being, quality of life, feelings of security, and so on.

2.2. Framework levels and layers

We developed an approach of using framework **levels** and **layers** to develop means that help to describe social and economic progress and the expected impacts under a specific project addressed.

Using levels (in dRural: organisational-solution level and societal-region level as described below), shall help to paint the picture on contextual factors and relationships between those inside and outside project boundaries that are likely relevant to impact measurement, but without any evaluation yet. Layers in turn put into context project-specific boundaries in terms of layers with each the capitals used in the dIM and are evaluated based on their thematic relevance and/or cumulative aggregation. In this way, we aim to provide a flexible approach towards targeted impact measurement, since any project/region/actor could basically design layers and KPIs respectively according to their own preferences. We would like to emphasize however that we have not started our activities on KPI operationalization (T6.2/D6.2) yet which means that anything discussed and exemplarily presented in this section remains subject to change. However, we hope these approaches will better equip us in identifying and operationalizing KPIs for dRural.

The level approach provides a generic understanding of contextual factors relevant to KPI identification. In dRural, this means that measurement takes place on two measurement levels: organisational-solution level and societal-region level. The organisational-solution level gives

account to thematic measures related to financial and nonfinancial performance in context with end-users, internal processes and overall learning and growth. In this way the contribution to the vision and strategy of dRural and other organisations such as the *native service providers* is made explicit. This should help strengthening the solution and validating it to a larger scale. The societal-region level shifts the focus to the broader ecosystem, where economic value of the market is augmented with social well-being and quality of life, but also social connections and environmental issues are taken into consideration. This should help to explore the conditions or opportunities for rural citizens to make use and benefit from the platform. Overall, this approach draws on the idea to tie organisational metrics at the platform level to overarching, region-/population wide level metrics at the societal level. The identification of levels relevant to impact measurement shall support in activities on identifying thematic

⁶ European Commission (2021) [RIS3 Guide - Smart Specialisation Platform \(europa.eu\)](https://ec.europa.eu/eip/eip_ris3_en)



subjects relevant at each of those levels, but not yet dive into them specifically. This will be done when introducing layers.

Figure 2 below provides an exemplary account to metrics relevant to dRural impact measurement at both the organisational and societal level.

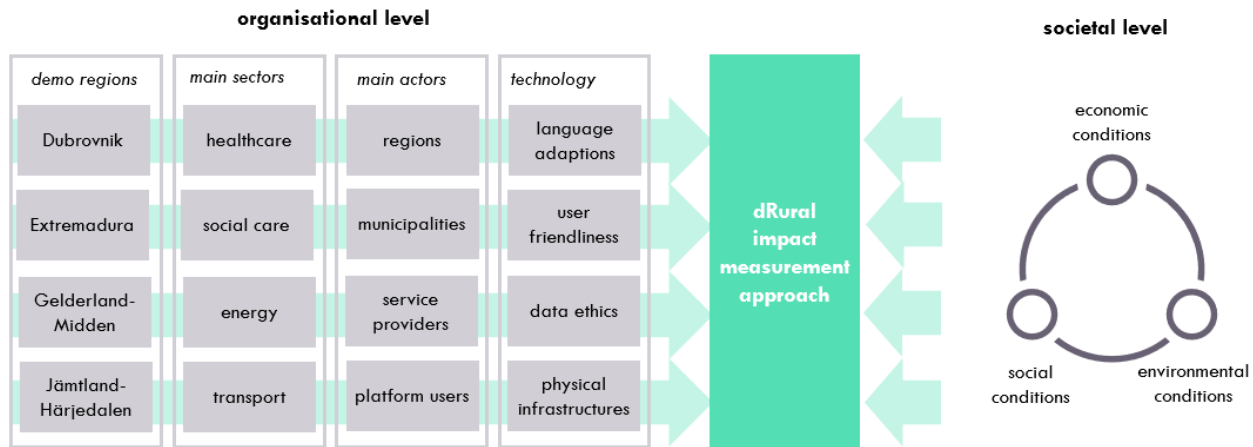


Figure 2. Different levels and examples of metrics relevant to impact measurement in dRural

The layer approach goes a step beyond. It provides a basis to put into relation project-specific boundaries with capitals of the dIM. Via this, different to the level approach, it is able to take into account the relative importance of individual categories and actors. However, as emphasized in in section 2.1.6. on symbolic capital, relative importance may vary across individuals, organisations, or communities at large. From a dRural perspective, actors included in the consortium may attach varying importance to individual capitals according to their individual or region-wide priorities. In consequence, they may feel the need to target the dIM based to their specific case to better reflect their specific conditions, e.g., targeted to regional-specific conditions (e.g., in terms of priorities, level in digitisation, and so forth) but also to the different type of services offered (e.g., delivery of healthcare, online education, food, etc.). This may also apply to the selection of KPIs to monitor progress in these dimensions. In order to circumvent these different needs and perspectives without needing to adjust the dIM to each individual scenario, we propose the usage of vertical layers targeted to project specific boundaries as a dynamic supplement to the dIM. **For dRural**, based on our definition and without warranty, we **identify 5 layers: regions** (representing the four demo regions at large), **regional demonstrators** (referring to each of the four demo-regions with an unique portfolio of services), **platform** (the common digital solution to trade services), **technology** (enabling platform development and access), and **end-users** (with individual resources and needs). Each of the layers has its own connection to a specific capital, potentially leading to different sets of indicators and calculation schemes across actors or regions for one and the same framework. This provides us with the opportunity to react quickly to changes without needing to adjust the dIM capitals. Furthermore, it offers the opportunity to develop KPI calculative schemes based on their accumulation to a specific capital at large, or to layers at a more nuanced focus, respectively. For example, KPIs on digitalisation may receive more attention and cumulative weight in achieving results in regions that are lagging behind in this area.

Figure 3 provides an exemplarily account of what we mean by introducing layers as vertical dimensions to the dIM.



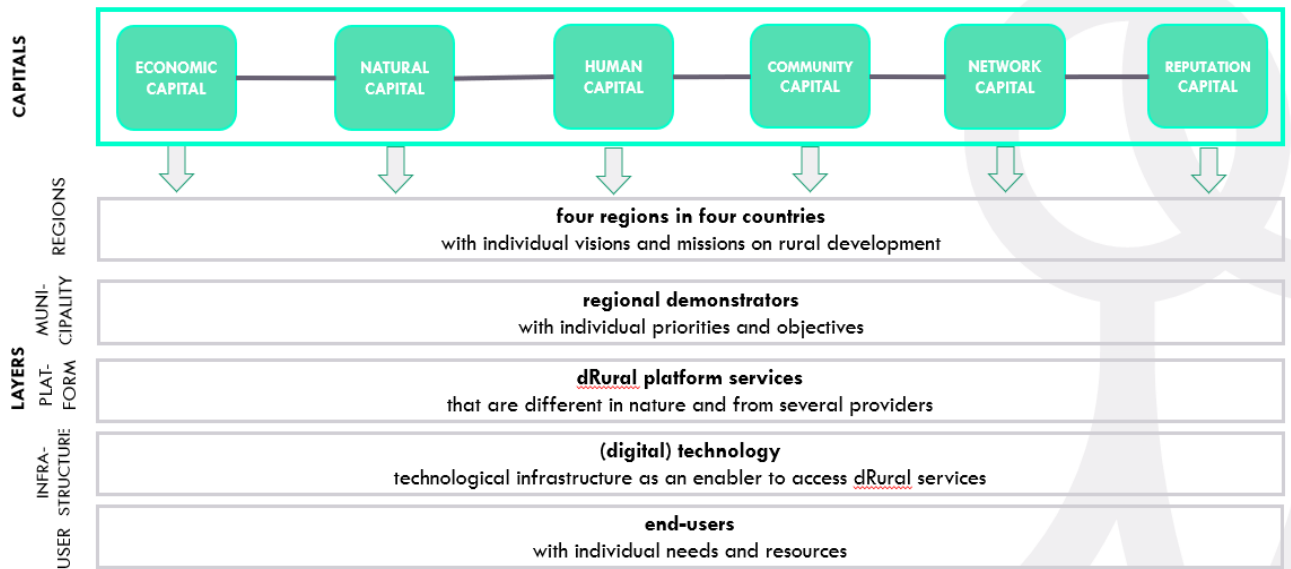


Figure 3. Different layers relevant to dRural

Table 1 respectively provides examples of thematic KPI themes that could be identified in the specific capital-layer relationships in collaboration with regions in T6.2.

	Economic capital	Natural capital	Human capital	Community capital	Network capital	Reputation capital
Regions	GDP, Income & wealth (averages); Level of digitisation	Stocks in natural capital; Emissions in total,	Education, Physical and mental health averages	Civic engagement (average), Policies, Norms		
Regional demonstrators	Jobs earnings; & Housing conditions;	Air pollution; Energy use efficiency	Education and healthcare delivery statistics	Active initiatives and memberships in non/profit organisations, charities and alike		Initiatives that help people devote to leisure and personal care
Platform	Financial performance metrics. Number of jobs created;	Services contributing to sustainability goals under Green Deal	Number of care/cure services provided	Number of non-profit organisations using platform	Number, duration, and type of relations enabled	Services that promote well-being in terms of family life, leisure



Technology	Access to High-Speed Internet. Broadband coverage	Physical infrastructures (Broadband access)	Digital skills			
End-users	Income and wealth distribution within households (gender pay gaps), Expenses on platform	Activities to achieve sustainability goals; Opportunities	Cognitive abilities, Health status, Degrees	Motives behind civic engagement activities	Number of social connections	Work-life balance; Subjective-well-being

Table 1: Examples of indicators themes targeted to specific capital-layer relationships

Please note that the table and its enclosed layers and thematic indicator examples are only for illustration purposes and are subject to change without prior notice. Our intention is rather to provide a more precise explanation of what is meant by introducing vertical layers and the opportunities thereof. As it can be seen in the table, some connections (cells) are left blank as they are deemed to be not sufficiently comparable with each other or might also lack in data available. This in turn offers the opportunity to not only design KPIs on careful thought about their capital-layer connections, but to put different weight to KPIs according to their accumulation to a specific capital for various reasons.

2.3. Relation to other EU impact measurement frameworks

To substantiate our preliminary finding during the development process, we also looked at what other measurement approaches have been used in European regions, and more specifically in other H2020 initiatives. In particular, our analysis based on grey literature included the following indices/projects:

- The Digital Economy and Society Index (DESI)⁷
- The Local and Regional Digital Indicators (LORDI)⁸
- The H2020 project on Architecture for Unified Regional and Open digital ecosystems for Smart Communities and wider Rural Areas Large scale adaption (AURORAL)⁹
- The H2020 project on the Development Smart Innovation through Research in Agriculture (DeSIRA)¹⁰

Though each of the projects has its own scope and boundaries, we recognized strong links to (parts of) dRural's objectives and WP6 in particular. All in all, all projects are providing (or are progressing to) measurement frameworks that emphasize to contribute to economic progress and well-being in one

⁷ DESI (2021) [The Digital Economy and Society Index \(DESI\) \(europa.eu\)](https://ec.europa.eu/economy_finance/desi)

⁸ LORDI (2021) [How to measure digitalisation in regions and cities: the LORDI framework and survey \(europa.eu\)](https://ec.europa.eu/economy_finance/lordi)

⁹ AURORAL (2021) [AURORAL](https://auroral.eu/)

¹⁰ DESIRA (2021) [Desira – Digitisation: Economic and Social Impacts on Rural Areas \(desira2020.eu\)](https://desira2020.eu/)



way or the other. For example, similar to dRural's scope, DESI and LORDI also emphasize to better understand digital transformation at European level, to help capitalising upon digitisation.

AURORAL, dRural's sister project, naturally has the most synergies as they are also setting up a measurement framework for a novel digital ecosystem. DeSIRA in turn aims to contribute to sustainability goals through strengthening research efforts in such areas.

Having in mind our key-motto on taking a look from a broader perspective, our analysis was limited to the questions of what kind of approach these frameworks follow in general, what dimensions they (intend to) use, and respectively, what are the synergies and differences in our approaches. To do so, we attempted to connect their thematic indicators to our capitals. KPIs were not considered yet.

Our main finding is that social metrics compared to economic metrics remain underrepresented, and scarce attention is given to well-being. Also, the themes of digitisation and sustainability had been frequently explored at global level, but in reality, many of the activities that influence such phenomena happen at the community- or even individual-level. Examples like these showcase the often-implicit assumptions hidden in measurement frameworks, accounting practices and real-world consequences.

More specific findings can be found in the Appendix.



3. Outlook

Based on the feedback we received from AURORAL and LORDI/DIGISER, we are confident that our approach has allowed us to look at impact measurement from a more comprehensive perspective, focusing on our key-idea of **taking a step back and looking from a bigger picture**. In consequence we feel better equipped to tackle our subsequent tasks and deliverables (T6.2/T6.3/T6.4; D.2/D.3).

In the next months, the next milestone is to operationalize the dIM into relevant and measurable indicators (T6.2, M5-11). This will be done in collaboration with regions and other dRural partners that will contribute to data collection. Measures need to match with a set of region-/population wide variables that might have a direct effect on the dRural performance in a given region. These activities will provide the basis towards the definition of the dRural baseline impact measurement (T6.3/D6.2, M12-16) to gauge the defined indicators at baseline level (T6.3/D6.3, M12-16), and to finally assess the dRural solution impacts (T6.4, M17-42).

In this process, we will continue ongoing discussions with partners from other projects such as AURORAL and LORDI/DIGISER to exchange experiences and to increase interoperability between the projects as best as we can.

Finally, for the purpose of academic knowledge contribution, it is planned to write an academic paper based on the work for this deliverable that will be then submitted to a peer-reviewed journal (open access) for the purpose of academic knowledge dissemination).



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5. Appendix

5.1. Appendix 1: Comparison with AURORAL

Impact framework comparison: AURORAL

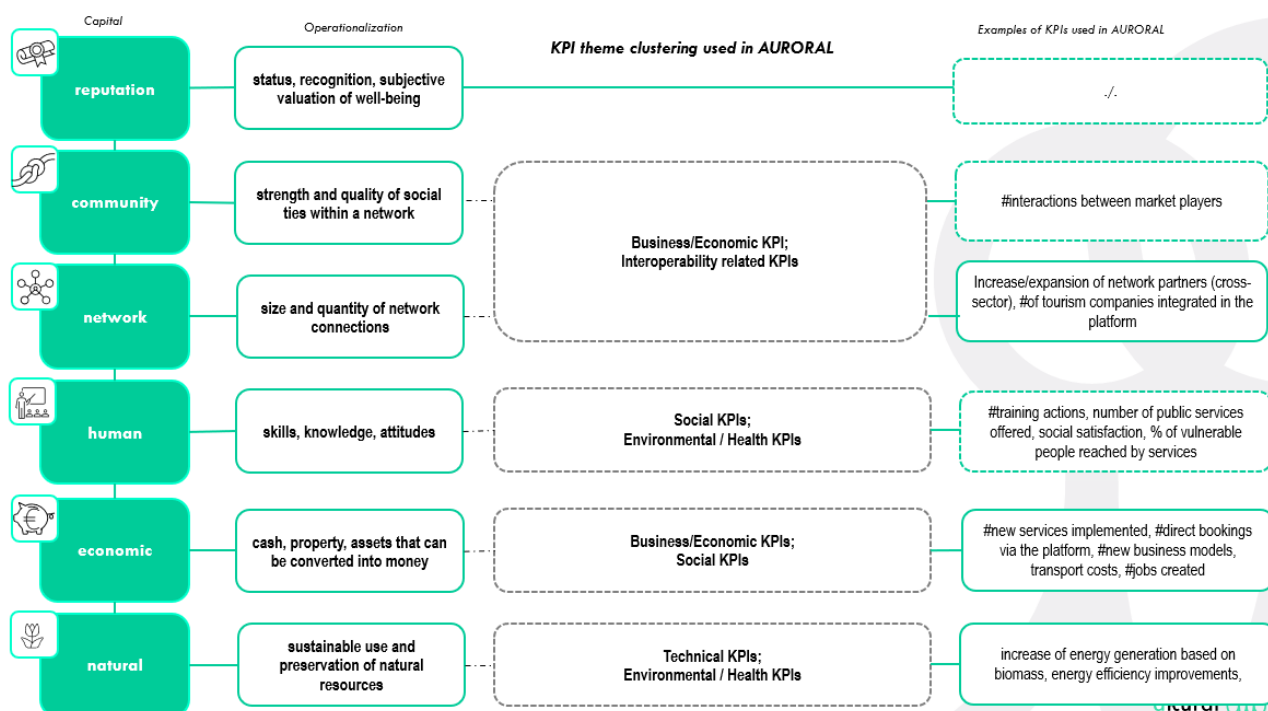
*“Architecture for Unified Regional and Open digital ecosystems for Smart Communities and Rural Areas
Large scale application”*

- Objective: helping to overcome digital divided between rural and urban areas
- Approach: Drawing together ICT-related and ‘Green Deal’ imperatives

KPI themes

- Technical KPIs
- Interoperability related KPIs
- Business/Economic KPIs
- Environmental/Health KPIs
- Social KPIs

- Own concern: Taking account environmental measures, Auroral enlarges scope beyond ICT.
- Social impact nevertheless remains less understood



5.2. Appendix 2: Comparison with LORDI

Impact framework comparison: LORDI

“Local and regional digital indicators”

- Objective: measuring digital transformation at local level
- Approach: two tiers of indicators: ‘KPI’ and ‘context indicators’

KPI themes	context indicators
<ul style="list-style-type: none"> ▪ Local digital infrastructure ▪ Local digital skills and capacity building ▪ Local digital economy and services ▪ Governance and digital single market 	<ul style="list-style-type: none"> ▪ Socioeconomic indicators (e.g., population size, economic structure)

- [Own] concern: selected indicators biased towards the ICT sector; (almost) no focus on environmental and social aspects

