THE CIRCULAR ECONOMY: A BROADER PERSPECTIVE FOR RURAL AREAS

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Abstract
The circular economy refers to a development strategy that allows economic growth by optimising the use of natural resources, minimising environmental pressures, transforming supply chains and consumption patterns and redesigning production systems so that they are restorative or regenerative by intention and design. A transition to a more circular economy requires a systemic approach that considers the interconnections that exist within and between sectors, institutions and local actors. The aim of the paper is to reflect on the characteristics of a territorial model for a circular rural economy, which directs its actions through a local lens to promote closer interaction between actors, by optimising the use of resources, and between production processes and social and cultural matrices.

Key Words: circular economy; rural development; sustainability; open source technology; social platform; social innovation

Abstract
L'economia circolare si riferisce a una strategia di sviluppo che consente la crescita economica ottimizzando l'uso delle risorse naturali, riducendo le pressioni ambientali, trasformando le catene di approvvigionamento e i modelli di consumo e riprogettando i sistemi di produzione in modo da essere riparativi o rigenerativi per intenzione e design. Una transizione verso un'economia più circolare richiede un approccio sistemico che consideri le interconnessioni tra i settori, le istituzioni e gli attori locali. L'obiettivo del lavoro è quello di riflettere sulle caratteristiche di un modello territoriale per un'economia rurale circolare, capace di orientarne le azioni verso una più stretta interazione tra gli attori, ottimizzando l'uso delle risorse e promuovendo sinergie tra i processi produttivi e le matrici culturali e sociali.

Parole chiave: economia circolare; sviluppo rurale; sostenibilità; tecnologia open source; piattaforma sociale; innovazione sociale

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1. Introduction

The capitalist economic model that is prevalent today has helped the majority of the world's population improve their standards of living. However, this has been achieved at the expense of our natural and social systems. On the one hand, pollution, climate change and destruction of bio-diversity; and on the other, levels of inequality that are probably unprecedented in the history of mankind, exacerbated by crises caused by the financial system (Raworth, 2017).

The development model that has been used until now is based on the assumption that nature is external to processes of valorisation and is rooted in a double reductionism: the environment seen as an infinite and free resource - at the beginning of the economic process; the environment perceived as an equally infinite and free dumping ground (Moore, 2017). The emphasis on the physical limits and their irreversibility is more than justified. It is undeniable that if the aggregate *throughput*, that is the material and energy flows which move through the economic system, continued to grow exponentially, then the limits of bio-physical regeneration would eventually be reached with dire consequences that, albeit hard to predict exactly, would undoubtedly be catastrophic for the future quality of life on Earth (Steffen *et al*., 2015). It would be wrong, however, to limit the profound complexity of the relationships between the economic system and the biosphere to a debate on physical limits. Indeed, it is important to consider that the social and economic impacts of the model can vary between places and even within places.

Adopting a place based perspective, and more specifically focusing on rural areas, we see that rural systems are facing a number of challenges to their long-term sustainability and they are showing contradictory pathways. Many rural areas of the world are facing the abandonment of agricultural activities while others are experiencing intensification of production (Keesde *et al*., 2017; Knickel *et al*., 2017; Salvia and Quaranta, 2015).

For decades farm modernisation was synonymous with the intensification of agricultural production, increased mechanisation and the reduction of production costs. Agricultural extension services, research and training all followed this development paradigm, making it increasingly more difficult to break from this model (Benvenuti, 1975). Only farmers in areas where intensification was not a viable option due to geographical constraints, often less favoured areas, continued to adopt production models based on mixed farming and crop rotation. As a result, there has been an increasing marginalisation of less favoured areas which are often more distant from markets and unable to lower costs of production enough to remain competitive (Knickel *et al*., 2013). The concentration of agricultural production and the increasing polarisation of agricultural structures has in fact led to significant problems in both, intensive farming areas and less favoured areas (European Commission, 2010; European Commission, 2011).

But as Marsden and Farioli (2015) outline, these phenomena are showing their shortcomings when contrasted with the fact that for the globe to cope with population growth, rapid depletion of resources (especially energy, food and minerals), environmental pressures and climate change there is a need to radically transform approaches to the production, consumption, processing, storage, re-cycling and disposal of biological resources (OECD, 2011; European Commission, 2012).

Both policy and scientific communities are converging around the need for the world to produce more food and energy, giving dominance to notions of neo-productivism (Marsden and Farioli, 2015).

Whilst it is incontrovertible that the world needs to move towards a post-carbon transition (Geels, 2002), what we currently witness are higher levels of contestation about the various pathways such a transition should take and indeed, the particular roles which politics, science and civil society should play in creating and shaping amenable economic and market frameworks for such pathways to prosper (Marsden, 2013).

Similarly, the concept of a transition to a circular economy came out of a growing economic and political consensus on the need to efficiently manage the finite resources that productive processes depend on in order to guarantee their long term sustainability. The transition to a more circular economy is widely considered an important priority, it has garnered the attention of many international organisations and has also been included as an objective under the EU's regulatory framework (Murray, Skene and Haynes, 2017). The circular economy refers to an economic system which breaks from the linearity of the "take-make-dispose" traditional growth model and, instead, promotes a regenerative system which supports solutions designed to allow the flow of biological materials to be reintegrated into the bio-sphere, and technical materials to be recirculated without entering the bio-sphere. The circular economy, therefore, outlines a development strategy which allows economic growth by optimising the use of natural resources, minimising environmental pressures, transforming supply chains and consumption patterns and redesigning production systems so that they are restorative or regenerative by intention and design (Ellen MacArthur Foundation, 2013) and is based on closing "resource-loops" in all economic activities (Hislop and Hill, 2011).

In this scenario, digital technologies are taking on an ever more important role. A very recent report by the Ellen MacArthur Foundation (2016) investigates the potential of so called "intelligent assets", technologies able to sense, store and communicate information about themselves and their surroundings. If indeed these new technologies bring about a "fourth industrial revolution" it remains to be seen if they will power a continuation of the current "linear" economic model or help facilitate the change to a circular economy. The aforementioned report seeks to open a discussion on how business and policymakers could best identify and capitalise on the synergies that circular economy and intelligent assets could provide. Sustainable development Goals, aiming to fulfil the new social and environmental demands of the society at national, international and European level, need to take advantage of latest new technologies methods and emerging terms, such as "Internet of Things" (IoT), the vast network of devices communicating over the Internet without the human involvement and circular economy, evidently predominating in recent research effort towards sustainability (Andreopoulou, 2017, Misso and Andreopoulou, 2017).

In the light of the outlined scenario, the aim of this paper is to reflect on the characteristics of a successful territorial model for a circular rural economy, a model which directs its actions through a local lens to promote closer interaction between economic actors, in terms of optimising use of resources, and between production processes and social and cultural matrices (Quaranta, Citro and Salvia, 2016). The broader circular approach proposed also requires a different interpretation of the "waste" products created by linear production processes, these could include abandoned rural areas and marginalised communities. Multi-level innovations aimed at redefining the processes and instruments for collective actions at a community level through rebuilding trust and strengthening community ties (Quaranta, Citro and Salvia, 2016) and at reshaping and implementing policies that are firmly place-based (Salvia and Quaranta, 2017) are required to build such a model. In this model, information systems can help in connecting the different parts of the system and also help in better connecting rural communities with the outside world.

In this regard, the adoption of the circular economy approach within endogenous and neo-endogenous/relational rural development theories and practices proves useful insofar as it defines a new theoretical, methodological and policy framework able to guide rural areas in the definition of developmental trajectories in which the human and social dimension defines and strengthens the circularity of local production processes.

The paper is structured as follows. A brief introduction to the circular economy and its application in the context of rural areas is followed by a more detailed discussion of the characteristics of a circular territorial development model that looks beyond the circularity of production and consumption patterns to the local territory as a whole. The paper closes with

some promising experiences and concluding remarks.

2. The methodological lens of circular economy

The concept of circular economy has gained prominence in international political debate as an effective strategy to deal with the problems of depleting available resources and increasing amounts of waste. The circular economy concept is appealing firstly, because it attempts to decouple economic growth from the indiscriminate use of resources and, secondly, because it offers the prospect of economic development that is sustainable in the long term (Gregson, 2015).

The concept was first introduced by Pearce and Turner (1989), who questioned the linearity at the core of traditional economic systems and saw in the concept of circular economies a new and sustainable economic model.

The concept is based on the economy imagined as a closed loop that, ideally, requires only an energy input from a renewable source (Kristensen, Kjeldsen and Thorsøe, 2016). This metaphor of the closed loop forms the basis of interpreting the circular economy concept. One of the most widely-used definitions of the circular economy comes from the Ellen MacArthur Foundation, which defines it as «an industrial economy that is restorative or regenerative by intention and design» (Ellen MacArthur Foundation, 2013: p. 7). The Foundation has published a series of reports on the topic which underline the importance of rethinking and redesigning the future based on a circular economy model.

Thinking in terms of a circular economy means abandoning the current economic model based of the linear "take-make-dispose" industrial system, which considers products at the end of their life-cycle as waste materials to eliminate from the system, and embracing an economic model that transforms waste into resources to recover and re-valorise through recycling and re-use (Gregson, 2015).

The concept of a circular economy is also at the heart of the theory of industrial ecology and extended product life.

Industrial ecology identifies analogies between the processes of interaction in natural systems and those in industrial systems. Using this as its starting point, the industrial ecology theory aims to show how the exchange of products and waste inside closed loop material cycles helps develop an economy that designs waste out. Similarly, extending product life through repair and reconditioning is another way to prevent waste and is also key to transitioning to sustainable models of production and consumption (Gregson, 2015).

The transition to a more circular economy requires change across every field: from product design, which should consider re-use at conception; to waste processing, using innovative systems; to consumer behaviour, which could be guided by an increased awareness of the benefits of circular economies. This means a systemic change is needed that takes into account the many interconnections between the economic, political and social spheres.

The building and promotion of circular economies is set out as a priority in the EU's policy agenda. In the report "Towards a circular economy: A zero waste programme for Europe'' the European Commission states that «moving to more circular economic (...) would allow Europe to rise to the current and future challenges of global pressure on resources and rising insecurity of supply» (European Commission, 2014: p.3). The EU's 7th Environment Action Plan 'Living well, within the limits of our planet' also underlines that our economic prosperity and the protection of our environment depend on an innovative and circular economy in which nothing is wasted and natural resources are managed sustainably (European Commission, 2013).

3. A broader perspective of the circular economy for rural areas?

The holistic approach to the circular economy could prove particularly successful in rural areas because it provides a methodology that could aid rural territories in designing sustainable and resilient development strategies. The existing literature, as far as the authors are aware, has only addressed the problem of applying the circular model to the agrifood system. In a recent publication, the Ellen MacArthur Foundation links the resilience of the agrifood sector to its circularity stating how «a circular development path could advance towards a regenerative food system» (Ellen MacArthur Foundation, 2015: p.76).

Redesigning the agrifood system in this way involves triggering changes in every phase of the process: from production, by adopting regenerative farming practices; to consumption, through more sustainable consumer behaviour; to waste management, thanks to the reuse of excess food through redistribution channels and food banks (Jurgilevichl *et al*., 2016).

The implementation of a circular agrifood system requires a long-term perspective and cannot be achieved, as in the past, by technological solutions alone (Kristensen, Kjeldsen and Thorsøe, 2016). Instead it needs the support of policies which are orientated towards environmental sustainability and social well being, as well as the commitment and cooperation of stakeholders in all sectors along the agrifood chain (Jurgilevichl *et al*., 2016).

However, what if the focus was shifted away from a sector based analysis and towards an analysis of the rural territory as a whole, would the circular economy model still be a valid instrument for defining sustainability pathways?

As discussed above, the dynamics of rural areas are profoundly shaped by political, social, economic and environmental factors, all of which define the current model of development. The contradictions of the current model, characterised by highly resource-intensive capital accumulation mechanisms and high levels of waste, are also evident in rural systems and, as aptly described by Kitchen and Marsden (2009), can be considered an «eco-economic paradox which typifies many rural areas that both hold potentially high ecological value and show persistently low levels of economic activity and welfare» (p. 274).

Processes of marginalisation in many rural areas are associated with a reduction in the quality and quantity of economic, social and environmental capital and, in many cases, with the loss, or "waste", of these capitals in valorisation processes. Taking natural capital as an example, we can see how in many rural areas the progressive process of marginalisation has led to land abandonment, with, among others, serious implications for biodiversity and ecosystem function; reduction of landscape heterogeneity and promotion of vegetation homogenisation, loss of cultural and aesthetic values (Leal Filho *et al*., 2016).

In terms of human and social capital, the incapacity of many rural systems to generate adequate job opportunities results in the production of more "waste", by fuelling higher rates of outmigration, especially among the younger generation who are often the most highly educated and economically and socially active members of the population (Bock, 2016). Reduced human capital also risks weakening communities' political and socio economic power when out-migration flows are accompanied by a loss of cultural capital and an erosion of community ties which, in the long term, can prohibit the community's ability to act and regenerate (Bock, 2016; Quaranta, Citro and Salvia, 2016).

In terms of economic capital, the current model of development and the restructuring measures put in place post the 2007 financial crisis, have resulted in a loss of competitiveness and, consequently, have forced small firms, typically labour-intensive craft businesses, out of the market (Bock, 2016).

As outlined by Marsden (2017, p. 187) dealing with rural UK:

« (…)Many rural areas have experienced a regressive "hollowing out" of their multiple and once dense infrastructures (…) just at the time when we are all realising the necessity to rebuild sustainable rural communities through more effective and place-based means. (...) just as we see the emergence of innovative community and local business eco-developments, much

of the surrounding infrastructures upon which these could be built seem to be declining or disappearing».

The processes described above are inter-linked and cumulative and have the potential to seriously compromise quality of life in rural areas by exacerbating the processes of migration and marginalisation already underway.

It becomes clear that the challenges facing rural areas go far beyond exclusively environmental concerns and require a broader interpretation of the concept of the circular economy that is aimed at tackling the range of problems arising from the traditional linear economic model with its high out-put of waste. The emphasis the circular economic approach puts on regeneration and the transformation of production and consumption patterns in order to minimise their impact on the environment and natural resources can be used as a model to rethink and restructure rural territories and their development. Circularity and, above-all, the re-introduction of resources which are underexploited and wasted in the current development model into valorisation chains, could be the right vehicle to carry a new and reformulated approach to rural development, based on the valorisation of endogenous assets and the setting up of sustainable networks inside rural territories (Quaranta, Citro and Salvia, 2016), and between rural areas and cities (Horlings and Marsden, 2014). In other words, adopting a circular economic approach which pairs the sustainability of natural resources with social and economic sustainability can operationalise, and strengthen, rural development paradigms like eco-economic rural development (Kitchen and Marsden, 2009) or the integrated territorial agrifood paradigm (Wiskerke, 2009), both revolving around re-localization of economic activities, recalibration of micro-economic behavior and practices that «added together, can potentially realign production consumption chains and capture local and regional value between rural and urban spaces» (Kitchen and Marsden 2009, p. 275).

The principle of resource circulation at the core of the circular economy concept can improve approaches to rural development, especially in its broader interpretation, and serve as a framework to build new policies or new policy instruments that are aimed at supporting innovative forms of development in rural areas.

Marsden (2017, p. 187) again points out «A major challenge (…) is to consider and enact *ways of re-creating these social and physical infrastructures in ways which can then create positive and circular economy feedbacks between different types of urban and rural communities*» (italics in original).

There are already examples of such policies/actions, such as short supply chains, social farming, agri-tourism and multifunctional valorisations of rural assets as a whole. If these examples were taken along with other similar examples, such as new inclusive models of migratory flows or the repurposing of disused or underused agricultural buildings and rural properties, and put under one framework built on the principle of circularity, these policies would prove more effective and increase the potential for synergies.

In this perspective, new technologies and especially open source technologies could play a pivotal role if used as the cornerstone to build and organize social and participatory innovations (Quaranta and Salvia, 2017).

However, rural re-development cannot depend on technology alone. Digital solutions might go some way in overcoming the limitations caused by poor rural infrastructure but ultimately rural re-development will depend on the community's ability to set up physical community-based business hubs, local food networks, alternative financial networks and the like. Underlying all of this is the need to have a firmly place-based model of rural development that is supported with policies at both regional and national levels (Marsden, 2017).

4. Positive signs of change

In recent years there have been encouraging signs that Italy is moving towards a more "circular" vision, as previously defined, of rural development. Among them are the National Strategy for Inland Areas, promoted by the Ministry of Territorial Cohesion, the establishment of law to set-up land banks, and, finally, the creation of hubs in rural areas. In all of these schemes technology plays a fundamental role but, equally important, is the fact that they all start from the premise that the "waste" products from the previous linear approach to rural development must be re-introduced to form an integral part of the new "circular" economy model.

The National Strategy for Inland Areas (SNAI) (Barca, Casavola and Lucatelli, 2014) aims to promote economic and social development in the many areas in Italy that are characterised by so called "minor centres", small and very small municipalities that currently can only offer their residents very limited accessibility to essential services. Italian Inland areas in fact are characterised by their distance from large centres offering essential services (e.g. schools, hospitals, transport links); the availability of important environmental resources (water, farming systems, forests, natural landscape) and cultural resources (archaeological patrimony, historical settlements, abbeys, small museums, craft centres); by the diversified nature of the local territory, a result of the inter-play between its various natural systems and age-old processes of anthropisation.

These inland areas, which make up over sixty percent of the country's total surface area, are home to nearly a quarter of Italy's population and count over 4,000 municipalities, most with less than 5,000 inhabitants (Dps, 2014; Lucatelli, 2016).

Since the 1950s many of the Inland Areas have seen a gradual process of marginalisation. This has manifested itself, firstly, in intense de-population (to below the critical threshold), population ageing (increase in the share of the population over the age of sixty-five) and reduced occupation and utilisation of land capital. Secondly, in the progressive reduction in the quality and quantity of local public, private and collective services.

The predominant characteristic of Italian Inland areas is their diversity. There are profound differences (at all levels: geographic, economic, social, cultural and ecosystemic) between the local systems that make up Italy's Inland Areas. Recognising these differences between local systems is the first step to recognising their complexity (Carlucci, Guerrizio and Lucatelli, 2013; Lucatelli and Salez, 2012).

The key aspect of the development strategy for inland areas is its capacity to link local and national perspectives. The latter can identify the value of assets belonging to inland areas but only the local communities, through a place-based approach (Barca, 2009; Salvia and Quaranta, 2017), can draw up a local strategy that takes into account the variety and complexity of its social and territorial capital. These strategies can also leverage the innovators that might already be operating in isolation in these Inland Areas and connect them to extraterritorial business, skills and value networks. Finding and bringing innovators already present in the local territory to the forefront is at the heart of the strategy being applied to inland areas.

In addition, promoting the development of inland areas could help mitigate some of the social costs associated with their decline, this being a benefit for the whole country. Hydro-geological instability is just one example of the social costs that are associated with the current land-use model in place in Inland Areas. There are many more examples, such as the loss of bio-diversity or the loss of traditional local knowledge and skills ("know-how").

In the short term, the strategy has the dual aim of improving the quantity and quality of health, education and transportation services and of promoting development projects that valorise the natural and cultural patrimony of these areas, focusing also on local production chains. The interventions in favour of local development, framed in territorial projects, are oriented to generate greater demand for jobs through the re-use of territorial capital. The projects are, therefore, integrated and have the long term aim of reversing the current demographic trends

in the country's Inland Areas (stemming depopulation and revitalising the social fabric of the resident population).

From a policy perspective, the strategy for inland areas assumes the features of "brokerage policies", which link otherwise unrelated resources, institutional spheres, networks and territorial levels. All in the pursuit of the valorisation of communal goods and creating interdependence between "weak" and "strong" areas.

Another good example is provided by the Italian National Law n. 154, Art. 16, of the 28th of July 2016 setting up the "Italian Agricultural Land Bank". Its objectives are:

a) to facilitate the restoration or better exploitation of uncultivated, under-cultivated or abandoned land and rural buildings;

b) to facilitate land reorganisation via the unification and expansion of farms' surface area;

c) to promote the setting up of new farms;

d) to incentivise production and job creation in rural areas through the development of agricultural activities, in synergy with private entrepreneurship, fostering greater generational change in the farming sector and safeguarding the hydro-geological environment;

f) to protect the environment and safeguard landscapes and bio-diversity;

g) to promote better access to agricultural land for local residents in order to boost agricultural production, create jobs and combat soil erosion;

h) to promote the recovery of abandoned areas, contain environmental degradation, limit forest fires, promote an optimal structuring of the territory through the development of agroforestry activities that are in line with the social, economic and environmental interests of local communities;

i) to counteract the abandonment and under-use of the local agroforestry patrimony, which risks compromising the local environment and local cultural and social resources, by promoting the restoration of agroforestry protection and activities in the model of sustainable and social agriculture.

The Land Bank provides an up-to-date list of agricultural lands and buildings, both publicly and privately owned, that are available to lease or up for concession. The aim of the Italian National Lank Bank is to get existing land capital back into circulation in order to promote more investment in land which, in turn, will help land consolidation and counteract the abandonment of agricultural land, ultimately making Italian agriculture as a whole more competitive. To facilitate the entrance of young farmers into the market, young people looking to buy plots of land will be entitled to subsidised loans and all the income made from the sale of land will be entirely devoted to supporting young farmers.

The platform used to gather, organise and input the data on the current supply of agricultural land is online (www.ismea.it). It seeks to provide a complete inventory of the supply of available Italian agricultural land so that demand can be more easily met.

Under the platform scheme, users can search by geographic location and readily find all the necessary information on available plots by province, such as surface area, natural features, cadastral information and existing crops or infrastructure.

The final scheme in this brief discussion is the setting up of a rural hub, under Measure 16 of the Basilicata Region's Rural Development Plan. Participatory platforms (Hubs) represent a new and exciting frontier in business and public policy implementation. They are based on the principles of open source technologies, social inclusion, mass collaboration, openness, sharing and global action. WWOOF (World-Wide Opportunities on Organic Farms) for example, an organisation that connects organic farmers with volunteers looking for un-paid work experience in the countryside, has now been operating for more than forty years. "Milano HubMakers" and "Open Incet - Centre for the Open Innovation in Turin", promoted by the Giacomo Brodolini Foundation, are examples of Hubs in urban areas.

The challenge facing the proposed hub project in Basilicata was how to adapt these

innovative model to the context of marginal, both economically and demographically, rural areas. This would require mechanisms able to aggregate existing nodes and put the nascent hub in network with existing local initiatives in order to activate natural synergies and promote mimic processes.

The rural hub can be considered a new kind of network which connects local stakeholders, or indeed anyone with an interest in developing and finding new solutions for rural economic and social development. Among its main aims are developing synergies, innovations and a greater ease of matching supply with demand in the rural agrifood industry. The rural hub model, when applied to inland and marginalised rural areas, also has the objective of promoting social farming, which promotes multi-functionality and seeks to open up markets for social farming businesses.

Using the need for innovation as its starting point, and with the involvement of all the different stakeholders in the "innovation chain", the project has identified the main features of the role of a successful rural hub in processes of development:

- "activating" processes of development for local businesses and the territory as a whole through networking, improving technology, territorial animation and training, as well as organising regional and trans regional events that can bring together all actors across the local territory;
- "ecosystem of social innovation" to promote long term partnerships with local public bodies and local producers, to implement communal projects with integrated actions aimed at promoting and valorising the local rural economy;
- "community connectivity" to promote and foster a greater sense of local identity in the rural economic sectors, strengthen local production chains and valorise and safeguard the local ecosystem, foster and consolidate the building of differentiated and evolved networks and services.

The implementation of the rural Hub seeks to:

- Promote the modernisation of production methods and technologies with a view to improve the quality of agricultural produce and promote the certification and traceability of agrifood products
- Improve the profitability of farms through diversification of products and services and the identification of pathways of development able to integrate the existing cultural, natural and environmental resources with high quality products
- Build strong local and ethical brand identities that feed into virtuous circles of production and are environmentally and socially conscious
- Ensure all community based actions for rural development are aimed at strengthening and building new and existing synergies between agricultural production and the local ecosystem
- Valorise the biodiversity of agricultural crops and animals, both as a means to promote a distinctive brand for local agriculture and to strengthen a sense of community identity
- Promote a multi-functional model of agriculture that inherently incorporates the economic value of agricultural and livestock farming with social values, environmental protection and the safeguarding of marginal areas
- Strengthen community identity, through building integrated and differentiated services and networks able to foster a "virtuous circle" model of sustainable rural development

5. Conclusion

Although the context in which the circular economy is set, characterised by instability

and uncertainty, a growing awareness of the scarcity of resources, and a drive towards "sustainable intensification" (Marsden, 2013), can present challenges to rural areas, it also provides opportunities for the transition to more sustainable development pathways. As outlined by Marsden (2013), transition periods can represent a window of opportunity to depart from the old system and produce something totally independent from the previous supporting structures, this is especially the case for systems at a micro-level set outside of the dominant regime that are willing to introduce innovation to bring about a desired regime change.

There are already many policies in place, both at a regional, national and international scale that are testament to the need to rethink the traditional development model, particularly that applied to rural areas. The commitment to address some of the challenges facing rural areas in the EU's 17 Sustainable Development Goals (SDGs), the EU's increased focus on the social dimension (European Commision, 2017), the emphasis on a more efficient use of resources promoted by the circular economy approach, Italy's strategy for inland areas, the Agricultural Land Bank and the rural hub are just a few examples of how the "landscape" is rapidly adopting new tools that, if combined, could radically revolutionise the role or rural areas. This paper proposes that a greater focus on applying the concepts of circularity could hold the key to restructuring, rethinking and operationalising rural areas. Especially if the two "revolutionary" elements of the circular economy are given centre stage; "regeneration" and the transformation of production and consumption patterns. The paper has also highlighted the crucial role of technology in these processes.

However, to prevent this new approach from simply being "accommodated" inside the already consolidated regime, it is essential that the objectives of the circularity concept be clearly set out as the driving force behind all approaches to the rural economy, and that the introduction of innovation be entirely embraced so as to allow for real system change and not just efficiency savings for the processes and structures of the existing system.

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