

**THE DIGITAL EVOLUTION OF URBAN PLANNING AND LAND-
USE MANAGEMENT IN ITALY**

Mara DEMICHELIS¹

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¹ PhD, Research fellow in Administrative Law, Department of Management, University of Turin, Italy.

1. INTRODUCTION

The digital and ecological transition is one of the main challenges and is at the centre of a wide-ranging debate, which also calls for the development of the legal instruments needed to ensure recovery and resilience.² The use of technology at the service of the administration and the citizens has been increasingly discussed in recent times, and digitalisation has been identified as the means of responding to the need for sustainability and efficiency in the organisation and administrative actions, particularly facing the pandemic emergency.³

European and national provisions on the recovery and resilience of the EU Member States have provided measures referring to the 'six pillars': green transition; digital transformation; smart, sustainable and inclusive growth⁴; social and territorial cohesion; health and economic, social and institutional resilience also for the response to new emergencies; policies for future generations.

² Art. 2(1)(5), Regulation (EU) 2021/241 of the European Parliament and of the Council of 12 February 2021 establishing the Facility for Recovery and Resilience.

³ R. CAVALLO PERIN (ed.), *L'amministrazione pubblica con i big data: da Torino un dibattito sull'intelligenza artificiale*, Quaderni del Dipartimento di Giurisprudenza dell'Università di Torino, Torino, 2021; G. PESCE, *Funzione amministrativa, intelligenza artificiale e blockchain*, Editoriale Scientifica, Napoli, 2021; R. CAVALLO PERIN, D. U. GALETTA (ed.), *Il diritto dell'amministrazione pubblica digitale*, Giappichelli, Torino, 2020; E. CARLONI, *I principi della legalità algoritmica. Le decisioni automatizzate di fronte al giudice amministrativo*, in *Dir. Amm.*, no. 2/2020, 273 ff.; F. CORTESE, *Costituzione e nuovi principi del diritto amministrativo*, in *Dir. Amm.*, no. 2/2020, 329 ff. Most recently: A. PAJNO, F. DONATI, A. PERRUCCI (eds.), *Intelligenza artificiale e diritto: una rivoluzione?*, vol. I, vol. II, vol. III, Collana Quaderni di Astrid, Il Mulino, Bologna, 2022.

⁴ Recital 10, Regulation (EU) 2021/241, cit.

The green transition promotes sustainable growth (the well-known European *Green Deal*) supporting the circular economy and green capabilities, to be realised through technological infrastructures and digital processes⁵ for a EU digital single market based on the integration and interoperability of existing data and information.⁶

The Union has therefore provided for the establishment of common interoperable data spaces in strategic areas⁷, including “data in support of the *Green Deal* priority actions”⁸ to share among Member States and with the EU.

⁵ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *The European Green Deal*, COM(2019) 640 final, 11 December 2019. L. TORCHIA, *Lo Stato digitale. Una introduzione*, Il Mulino, Bologna, 2023; F. DE LEONARDIS, *La transizione ecologica come modello di sviluppo di sistema: spunti sul ruolo delle amministrazioni*, in *Dir. Amm.*, no. 4/2021, 779 ff.

⁶ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Digital Compass 2030: The European Model for the Digital Decade*, COM(2021) 118 final, 9 March 2021.

⁷ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *A European Strategy for Data*, COM(2020) 66 final, 19 February 2020, esp. 14 and 19.

⁸ Regulation (EU) 2022/868 of the European Parliament and of the Council of 30 May 2022 on European data governance and amending Regulation (EU) 2018/1724 (*Data Governance Regulation*). On the perspectives of individual data spaces, EU Commission, *Staff Working document on Data Space*, SWD(2022) 45 final, 23 February 2022. The European Union has defined common organisational and operational rules for the compatibility of the spatial metadata and formats: Directive 2003/98/EC of the European Parliament and of the Council of 17 November 2003 on the re-use of public sector information - now superseded - on the basis of Communication COM (2001) 606, *eEurope 2002: An EU framework for the exploitation of public sector information*. Recital 17, Directive (EU) 2019/1024 of the European Parliament and of the Council of 20 June 2019 on the openness of data and the re-use of public sector information (recast).

However, in the national context the introduction of digital technologies (known as ICTs - *Information and Communication Technologies*) is particularly linked to the aim of digitising public administrations for greater efficiency, transparency, and simplification.⁹

The progressive introduction of new technologies has also changed the land-use and urban planning management sector: the satellite survey and monitoring¹⁰ allow public administrations to carry out the preliminary activity to define the different administrative procedures.¹¹

⁹ D.U. GALETTA, *Transizione digitale e diritto ad una buona amministrazione: fra prospettive aperte per le Pubbliche Amministrazioni dal Piano Nazionale di Ripresa e Resilienza e problemi ancora da affrontare*, in *federalismi.it*, no. 7/2022, 103 ss.; B. MARCHETTI, voce *Amministrazione digitale*, in *Enc. del diritto - I Tematici*, Giuffrè, Milano, 2022; E. CHITI, B. MARCHETTI, N. RANGONE, *L'impiego di sistemi di intelligenza artificiale nelle pubbliche amministrazioni italiane: prove generali*, in *BioLaw Journal*, no. 2/2022, 489 ff.; S. CIVITARESE MATTEUCCI, *The Rise of Technological Administration and the Ragged Route Towards a Digital Administrative Law*, in D. SORACE, L. FERRARA, I. PIAZZA (eds.) *The changing administrative law of an EU Member State*, Springer, London, 2021, 127 ff.; R. CAVALLO PERIN, *Ragionando come se la digitalizzazione fosse data*, in *Dir. Amm.*, no. 2/2020, 305 ff.; ID., *Amministrazione digitale algoritmica. Il quadro costituzionale*, in R. CAVALLO PERIN, D. U. GALETTA (ed.), *Il diritto dell'amministrazione pubblica digitale*, cit., 1 ss.; A. SIMONCINI, *L'algoritmo incostituzionale: intelligenza artificiale e il futuro delle libertà*, in *BioLaw Journal*, no. 1/2019, 63 ff.

¹⁰ Among the software based on satellite surveys see *Google Earth*, which has been developed by *Keyhole, inc.* in 2001, later acquired by *Google LLC*. *Google Earth* is distributed free of charge to users making available virtual satellite images of the Earth from remote sensing, aerial photographs and topographical data, albeit *Terravision*, developed by *ART+COM Studios*, was the first software to offer satellite tools for viewing the Earth (patent registered in 1995). The company filed a lawsuit against *Google* in 2014 for infringement of patent rights with the release of *Google Earth*. The ruling in *Google's* favour dates back to 2017. On appeal, *United States Court of Appeals, Federal Circuit, ART+COM Innovationpool GMBH v. Google LLC*, 20 October 2017. Others include *Google Maps*, whose first version dates back to 2005, *NASA WorldView* and *OssimPlanet*.

¹¹ In Italy, legal problems concerning the use of ICTs in administrative activities can generally be traced back to the use of Artificial Intelligence mechanisms in public decisions. P. FORTE, *Diritto amministrativo e data science. Appunti di Intelligenza Amministrativa Artificiale (AAI)*, in *P.A. Persona e amministrazione*, no. 1/2020, 248 ff.;

Technological tools based on the real time-processing of big data and information on the state of lands, cities, and territories are generally carried out in different ways for predictive or cognitive purposes (e.g. for the prevention of seismic and climatic risks).¹²

Thus, datafication in land-use management has produced heterogeneous data sets, crucial for providing support to public decisions concerning mobility¹³ and transport sector,

J.B. AUBY, *Il diritto amministrativo di fronte alle sfide digitali*, in *Ist. del federalismo*, no. 3/2019, 629 ff.; E. CARLONI, *Algoritmi su carta. Politiche di digitalizzazione e trasformazione digitale delle amministrazioni*, in *Dir. Pub.*, n. 2/2019, 363 ss.; D.U. GALETTA, J.G. CORVALÁN, *Intelligenza Artificiale per una Pubblica Amministrazione 4.0? Potenzialità, rischi e sfide della rivoluzione tecnologica in atto*, in *federalismi.it*, 2019; D.U. GALETTA, *Open Government, Open Data e azione amministrativa*, in *Ist. del federalismo*, no. 3/2019, 663; ID., *La pubblica amministrazione nell'era delle ICT: sportello digitale unico e intelligenza artificiale al servizio della trasparenza e dei cittadini?* in *Cyberspazio e diritto*, no. 3/2018, 319 ff.; G. CARULLO, *Gestione, fruizione e diffusione dei dati dell'amministrazione digitale e funzione amministrativa*, Giappichelli, Torino, 2018. More recently, A. LALLI (ed.), *L'amministrazione pubblica nell'era digitale*, Giappichelli, Turin, 2022. Cons. Stato, sez. III, 25 November 2021, no. 7891; Cons. Stato, sez. VI, 4 February 2020, no. 881, incorporating the previous ruling Cons. Stato, sez. VI, 8 April 2019, no. 2270; Cons. Stato, sez. VI, 13 December 2019, no. 8472; T.A.R. Lazio, sec. III-bis, 22 March 2017, no. 3769. R. FERRARA, *Il giudice amministrativo e gli algoritmi. Extemporaneous notes on the margin of a recent jurisprudential debate*, in *Dir. Amm.*, no. 4/2019, 773 ff.

¹² See *Copernicus*, the European Union's Earth observation programme for monitoring the planet and the environment. It is coordinated and managed by the European Commission, implemented in cooperation with the Member States, the European Space Agency (ESA), the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT), the European Centre for Medium-Range Weather Forecasts (CEPMMT), EU agencies and *Mercator Océan*. Initially, it was called the *Global Monitoring for Environment and Security (GMES) initiative*, see Council Resolution of 16 November 2000 on the European space strategy, C 371/02. For a deep analysis see: M. DEMICHELI, *Il coordinamento delle informazioni geografiche e territoriali per il governo digitale del territorio*, in *Dir. Amm.*, forthcoming.

¹³ As an example, it's possible to consider what happened with the well-known '*GPS, Global Positioning System*', devised in the late 1960s and officially launched in 1973 (military *Transit* programme), which is now used by 4 billion people, bringing the US an income of around 1.4 trillion dollars a year. Actually, each smartphone can pinpoint the position of a subject every two seconds, about 43,000 times a day. For analysis in this fields, see: M.B.

for the elaboration of security and civil protection policies¹⁴, which qualify the territory¹⁵ as a strategic issue to pursue digital and sustainable development goals.¹⁶

ARMIENTO, *Intelligenza artificiale e servizio di trasporto pubblico locale di linea nella smart city*, in A. PAJNO, F. DONATI, A. PERRUCCI (eds.), *Intelligenza artificiale e diritto: una rivoluzione?*, vol II, cit.; L. PREVITI, *New Challenges of the Urban Mobility in the Area of Digitalization: From Sharing Mobility To "Vehicle To Grid"*, in *Ius Publicum Network Review*, no. 1/2022.

¹⁴ V. BERLINGÒ, *Il fenomeno della datafication e la sua giuridicizzazione*, in *Riv. trim. dir. pub.*, no. 3/2017, 641. See also L. FLORIDI, *Etica dell'intelligenza artificiale. Sviluppi, opportunità, sfide*, Raffaello Cortina, Milano, 2022. Most recently: P. RUBECCHINI, *Tecnologia blockchain e fiducia amministrativa*, Editoriale Scientifica, Napoli, 2023; R. CAVALLO PERIN, *Fondamento e cultura giuridica per la decisione algoritmica*, in U. SALANITRO (ed.), *SMART la persona e l'infosfera*, Pacini, Pisa, 2022, 90 ff. See also: N. PAOLANTONIO, *Il potere discrezionale della pubblica automazione. Disconcerting and stylistic. (On judicial review of 'algorithmic decisions')*, in *Dir. Amm.*, no. 4/2012, 813 ff.; R. CAVALLO PERIN, D. U. GALETTA (eds.), *Il diritto dell'amministrazione pubblica digitale*, cit.

¹⁵ J.B. AUBY, *Droit de l'urbanisme et droit européen*, in *AJDA*, no. 8/1995, 667 ff.; M.P. CHITI, *Il ruolo della comunità europea nel governo del territorio*, in *Riv. giur. ed.*, no. 2/2003, 91 ff. See also P.L. PORTALURI, *Dal diritto delle costruzioni nelle città al governo del territorio*, in *federalismi.it*, no. 19/2019; G.F. CARTEI, *Regenerazione urbana e governo del territorio*, in *Ist. del federalismo*, no. 3/2017, 603 ss.; M.P. CHITI, *Ambiente e "Costituzione" europea: alcuni nodi problematici*, in *Riv. it. dir. pub. com.*, no. 6/1998, 1417 ss.

¹⁶ Art. 3(3) TEU. M. DELSIGNORE, voce *Ambiente*, in *Enc. del diritto - I tematici*, Giuffrè, Milano, 2022, 46 ff., spec. 55. In relation to the environment, reference is made to the constitutional reform, l. cost. 11 February 2022, no. 2, *Modifiche agli articoli 9 e 41 della Costituzione in materia di tutela dell'ambiente*. See: A. CIOFFI, R. FERRARA, *Ambiente e costituzione*, in *Giustizia insieme*, 2022. M.P. CHITI, *Il ruolo della comunità europea nel governo del territorio*, cit., 93-94, who also recalls a renewed role of art. 175 of the EC Treaty (now art. 192 TFEU). This underlines the 'expansive dynamic' proper to the Community order that has made sustainable development a proper EU goal by expanding its competences, as already happened with the subsidiarity principle in 1992. In the past, F. SALVIA, *Ambiente e sviluppo sostenibile*, in *Riv. giur. amb.*, no. 2/1998, 235 ff. Recently, F. DE LEONARDIS, *La transizione ecologica come modello di sviluppo di sistema: spunti sul ruolo delle amministrazioni*, in *Dir. Amm.*, no. 4/2021, 782 ff.; M. ANTONIOLI, *Sviluppo sostenibile e giudice amministrativo tra tutela ambientale e governo del territorio*, in *Riv. it. dir. pub. com.*, no. 2/2019, 201 ff. In Italy, Art. 3-*quater*, Legislative Decree No. 152 of 3 April 2006, *Norme in materia ambientale*, dates back in time and, therefore, it is currently re-proposed in the circular

In this perspective, the contribution aims to analyse how the use of digital tools can contribute to realise a land-use management and urban planning activity based on interoperable and common data to implement urban regeneration, limiting soil consumption.¹⁷

2. THE DIGITAL COORDINATION OF GEOGRAPHICAL AND TERRITORIAL DATA: THE EUROPEAN INFRASTRUCTURE FOR SPATIAL INFORMATION FOR DIGITAL URBAN PLANNING

The aim of the EU to create common data spaces in strategic areas, including those related to environment and climate, sustainable mobility, agriculture and construction for the implementation of the Green Deal, has been mentioned in the implementation of the European programmes for the Digital Compass 2030.¹⁸

For the creation of these common European data spaces, the EU has started to regulate IT infrastructures to ensure interconnection and interoperability of information at national and European level¹⁹, beyond the national borders of States.

economy model as a result of the reversal from sustainable development as an objective to the necessary protection of the common threat of climate change.

¹⁷ For a more extensive analysis, M. DEMICHELIS, *Il governo digitale del territorio. Dagli usi temporanei alla rigenerazione urbana*, Jovene, Napoli, forthcoming.

¹⁸ The European Data Strategy 2020 envisages the creation of ten data spaces, but the goal is the formation of a single European data space, see EU Commission, *Staff Working Document on Common European Data Spaces*, cit.

¹⁹ According to the assertion that, today, wealth is not possessing data, but making it usable. A. KOTSEV, M. MINGHINI, R. TOMAS, V. CETL, M. LUTZ, *From Spatial Data Infrastructures to Data Spaces - A Technological*

This not only applies to environmental information. The development of the technologies needed for Earth observation and geo-information services by the Union and the Member States is also supported by recent provisions governing the European geospatial sector.²⁰ Ensuring access to spatial and environmental information, allows the EU to reach 'independent' decision-making and operational capability in these areas.²¹

In the field of land-use and urban planning management²², it is becoming increasingly necessary to use IT infrastructures with simultaneous data exchange systems,

Perspective on the Evolution of European SDIs, in *ISPRS International Journal of Geo-Information*, vol. 9, no. 176/2020, 1 ff. Data sharing is also the subject of a recent proposal for a regulation on interoperability: EU Commission, Proposal for a Regulation of the European Parliament and of the Council laying down measures for a high level of interoperability of the public sector within the Union (Legislation on an interoperable Europe), Brussels, 18 November 2022, COM(2022) 720 final, 2022/0379 (COD). Reference is also made to what is envisaged in Italy by AgID, *Piano Triennale per l'Informatica nella Pubblica Amministrazione. Update 2022-2024*, 5, on the subject of 'Guiding Principles'.

²⁰ Recital No. 7, Regulation (EU) 2021/696 of the European Parliament and of the Council of 28 April 2021 establishing the Union Space Programme and the European Union Space Programme Agency and repealing Regulations (EU) No 912/2010, (EU) No 1285/2013 and (EU) No 377/2014 and Decision No 541/2014/EU. On the exercise of the Union's competence in the space sector, see Recital No. 9, Regulation (EU) 2021/696, cited above, which refers to Article 4(3) TFEU.

²¹ Recitals 71 and 78, Regulation (EU) 2021/696, cit. and the technological independence of the Union is referred to in Recitals 62, 71 and Article 4(1)(a).

²² J.B. AUBY, *Droit de l'urbanisme et droit européen*, cit., 667 ff. See also P.L. PORTALURI, *Dal diritto delle costruzioni nelle città al governo del territorio*, in *federalismi.it*, no. 19/2019. On the original eccentricity of 'territorial government' in the European context, see firstly: M.P. CHITI, *Ambiente e "Costituzione" europea: alcuni nodi problematici*, in *Riv. it. dir. pub. com.*, no. 6/1998, 1417 ff. Recently, G.F. CARTEI, *Rigenerazione urbana e governo del territorio*, in *Ist. del federalismo*, no. 3/2017, 603 ff.

even across national borders²³, to ensure an adequate representation of reality. This is necessary in order to pursue the digital and sustainable development goals set by the EU.²⁴

The INSPIRE (*Infrastructure for Spatial Information in Europe*) Directive of 2007, which regulates the collection and exchange of spatial data between Member States and with the Union, was the first to address such systems for the implementation of digital spatial government.²⁵

²³ Indeed, in the event of a danger to public health and the environment from a polluted site located in an EU Member State, the consequences may also extend to neighbouring Member States. This makes necessary not only to collect, but also to transmit data and information on, e.g., air quality, location of neighbouring towns affected by the phenomena, watercourses and rivers. There are several European experiences of developing initiatives to monitor and make available data also in aggregated form on spatial development, soil status and protection. Among the various initiatives are: *Urban Data Platform Plus*, a joint initiative of the Joint Research Centre (JRC) and the Directorate-General for Regional and Urban Policy (DG REGIO). The platform, which is a key component of the Knowledge Centre for Territorial Policies, provides access to information on the state and trends of cities and regions, on urban and territorial development strategies supported by the EU, and on the local dimension of the realisation of the objectives also of sustainable development, see the external report, M. GAZZARI, A. SIRACUSA, P. PROIETTI, *Scaling Up Efforts Towards the Localisation of SDGs. An Italian Experience*, JRC, EU, 2023.

²⁴ M.P. CHITI, *Il ruolo della comunità europea nel governo del territorio*, cit., 93-94. In the past, F. SALVIA, *Environment and Sustainable Development*, in *Riv. giur. amb.*, no. 2/1998, 235 ff. More recently, F. DE LEONARDIS, *La transizione ecologica come modello di sviluppo di sistema: spunti sul ruolo delle amministrazioni*, cit., 782 ff.

²⁵ Directive 2007/2/EC of the European Parliament and of the Council establishing an Infrastructure for Spatial Information in the European Community - INSPIRE Directive (L. 108/1), 14 March 2007. In 2004, the European Community noted the need for usable data from all Member States, which until then had often been fragmented or unavailable due to sharing restrictions imposed by the owner state. See: Recitals 2 and 4, INSPIRE Directive, cit. Reference is also made to the Sixth Environment Action Programme, Decision No 1600 of the European Parliament and of the Council, 22 July 2002. Recital 12, recalls the role of legislation as a central element in responding to environmental challenges and the full and proper implementation of existing legislation.

INSPIRE establishes a general European database for integrated coordination among the information available to the individual States²⁶, to be progressively implemented while respecting regional and local diversity for the harmonisation, organisation, dissemination, and use of spatial data²⁷.

These are defined as data available in electronic digital format²⁸, usable for the exercise of public functions²⁹, which are - directly or indirectly - related to a specific location or geographical area³⁰. Spatial data are produced, managed and held by public authorities or by third parties, on behalf of public authorities.³¹

²⁶ Recitals 7, 10 and 11, INSPIRE Directive, cit. The Recitals mention several initiatives launched at European level, such as: Council Regulation (EC) No 876/2002 of 21 May 2002 setting up the Galileo Joint Undertaking; Communication from the Commission to the European Parliament and the Council on *Global Monitoring for Environment and Security (GMES): Establishing a GMES capacity by 2008 (Action Plan 2004-2008)*. Decision 2000/479/EC of 17 July 2000 on the implementation of the European Pollutant Emission Register (EPER). It should be noted that, by way of derogation from Article 11(1) of the INSPIRE Directive, cited above, Member States may restrict public access to data sets and services if this would harm international relations, public security or national defence (see also Article 13(1) of the INSPIRE Directive, cited above).

²⁷ Art. 15 and Art. 18, INSPIRE Directive, cit.

²⁸ Art. 4(1), INSPIRE Directive, cit.

²⁹ Recital 12, INSPIRE Directive, cit.

³⁰ Art. 3(1)(2), INSPIRE Directive, cit.

³¹ Data providers argued on the high costs of producing the data in the INSPIRE development phase and therefore it would be necessary to charge a fee to those who made use of the infrastructure, cfr. E. SÁNCHEZ JORDÁN, C. MAIOLI, *E-government and Infrastructure for Spatial Information: from Cadastre to INSPIRE*, in *Informatica e diritto*, no. 1-2/2008, 457 ff.

Member States must make these data available for the purposes of European environmental policy-making and implementation (Art. 1(1), INSPIRE Directive)³². Each Member State is required to establish and manage a national infrastructure for geographical and spatial data and metadata containing the 34 data sets of the Directive (Annexes I, II and III) relating to spatial, physical, and human interaction information.³³

To enable compatibility and sharing of information between different scales and levels, the EU imposes an obligation to store and effectively maintain data in accordance with the latest technology.³⁴

³² Providing for the guarantee of the most appropriate level of data processing, their sharing and searchability, fitness for purpose and interoperability, cfr. E. CARLONI, *La qualità delle informazioni pubbliche. L'esperienza italiana nella prospettiva comparata*, in *Riv. trim. dir. pub.*, no. 1/2009, 155 ff.

³³ Recital 5, Art. 1, INSPIRE Directive, cit. See also R. CAVALLO PERIN, voce *Agricoltura* cit. Art. 1(2), INSPIRE Directive, cit. and Annexes I, II, III. Annex I contains spatial reference information such as cadastral parcels, coordinate and grid reference systems, administrative units, addresses, transport networks, protected sites, etc.. These provide a location reference for the more general physical-geographical data in Annex II (elevation, land cover, geology and ortho-imagery) and Annex III (agricultural facilities, weather, buildings, habitats, human health and safety, land use monitoring, utilities, etc.). In the EU Commission's public consultation on INSPIRE (EU Commission, *Factual Summary Report on the Public Consultation for the Evaluation of Directive 2007/2/EC of 14 March 2007/EC establishing an Infrastructure for Spatial Information in the European Community (INSPIRE Directive)*, 27 August 2021, 5), it was underlined that the types of geospatial data most used by those accessing the infrastructure are of a general nature data on administrative units (64%), land use data (56%), cadastral parcel data (56%), orthoimagery (53%), buildings (52%) and data on protected sites (51%).

³⁴ Recital 13 and Art. 4(4), INSPIRE Directive, cited above, which does not provide for the collection of new data. Recital 1, and Art. 7(1), INSPIRE Directive, cit.

Member States shall establish and operate a network with all the national and local public administrations³⁵ to ensure the provision of search, browse, download and conversion services for spatial data³⁶, without any limitation to the sharing of data sets and services.³⁷

The Members States' data must be usable in national and cross-border context by transmission to the Commission annually, with the guarantee of a double level of sharing with the users and between the public administrations acting in the different territorial areas.³⁸

³⁵ Art. 12, INSPIRE Directive cit. See also: A. KOTSEV, M. MINGHINI, V. CETL, F. PENNINGA, J. ROBBRECHT, M. LUTZ, *INSPIRE - A Public Sector Contribution to the European Green Deal Data Space. A vision for the technological evolution of Europe's Spatial Data Infrastructures for 2030*, JRC Science for policy report, EU Commission, Publications Office of the European Union, Luxembourg, 2021, 21. Commission Regulation (EC) No 1205/2008 of 3 December 2008 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards metadata; Commission Implementing Decision (EU) 2019/1372 of 19 August 2019 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards monitoring and reporting; Commission Decision of 5 June 2009 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards monitoring and reporting. On the continuous technological evolution, *Fit for Future Platform Opinion, INSPIRE -Directive establishing an Infrastructure for Spatial Information in the European Community*, 10 December 2021, 2021/SBGR2/09, 10.

³⁶ Art. 11(1)(a), (b), (c), (d), (e), INSPIRE Directive, cit. With reference to points (a) and (b), on data search and consultation services, it is specified that these must be made available free of charge to the public (Art. 14(1), INSPIRE Directive, cit.). If allowed by its Member State, a public authority may apply charges to the view service, to ensure the maintenance of spatial data sets and corresponding spatial data services, in particular if large amounts of frequently updated data are involved.

³⁷ Art. 17(1) and (2), INSPIRE Directive, cit. See recently: L. AMMANNATI, F. DI PORTO, *L'intelligenza artificiale per la fornitura di servizi, di applicazioni e la produzione di regole: Digital Services Act, Digital Markets Act e Artificial Intelligence Act*, in A. PAJNO, F. DONATI, A. PERRUCCI (eds.), *Intelligenza artificiale e diritto: una rivoluzione?*, vol. I, cit.

³⁸ Art. 7(3) and Art. 21, INSPIRE Directive, cit, indicating the basic principles for monitoring and reporting. To summarise, the INSPIRE Directive requires a report to be submitted that contains a description of how public

To make better decisions for both the public sector and businesses, the EU has strengthened the rules on open access to information and investment in cloud infrastructures. The aim is to modernize INSPIRE and standardize access to services deemed to be of high value across the European Union, through, among other things, the progressive establishment of a European Single Digital Gateway.³⁹

providers of spatial data sets and their services, users, intermediary bodies - with quality assurance - and relations with third parties are coordinated. Reference is also made to Recital 35 and Article 4(4), INSPIRE Directive, cit. E. SÁNCHEZ JORDÁN, C. MAIOLI, *E-government and Infrastructure for Spatial Information: from Cadastre to INSPIRE*, cit., 456 ff. There is a need for enhanced cooperation between the various levels of government to ensure compatibility of geospatial information in Europe, in European Committee of the Regions, *Commission for Territorial Cohesion Policy and EU Budget, Integration of Geographic and Statistical data for better EU policy making*, 2021, ii ff. where it is stated that a European geospatial agency should be created with clear competences that go beyond promoting coordination and exchange between national authorities. The total number of available metadata was about 260,000 (160,000 for datasets and 100,000 for spatial data services) in 2019, with a gap between states from 42 for Cyprus to 42311 for France, for example. See M. MINGHINI, V. CETL, L. ZIEMBA, R. TOMAS, D. FRANCIOLI, D. ARTASENSI, E. EPURE, F. VINCI, *Establishing a new baseline for monitoring the status of EU Spatial Data Infrastructure. Experiences and conclusions from INSPIRE 2019 monitoring and reporting*, EJRC Technical Report, Publications Office of the European Union, 2020, 21. Accessibility to the INSPIRE infrastructure continues to register very low values, close to 0% in some cases (Ireland or Liechtenstein), with peaks close to 100% (Greece), but overall almost all indicators have increased by 10%, showing a positive trend.

³⁹ EU Regulation 1724/2018, cit., which aims to develop 21 administrative procedures fully accessible online and compliant with European legislation by the end of 2023. See G. BUTTARELLI, *L'interoperabilità dei dati nella Pubblica Amministrazione*, in V. BONTEMPI (ed.), *Lo Stato digitale nel Piano nazionale di Ripresa e Resilienza (PNRR)*, RomaTre Press, 2022, 144 ff.; L.G. SCIANNELLA, *"E-government" e accessibilità ai servizi: il "Sigle Digital Gateway"*, in *ambienteditto.it*, 2021, 458 ff. Reference is also made to the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *European Interoperability Framework - Implementation Strategy*, 23 March 2017, COM(2017) 134 final. With this strategy, the Union envisaged the establishment of the *European Interoperability Framework (EIF)*, for a common interoperability model, articulated in 47 recommendations divided into three pillars (general principles, levels of interoperability, conceptual model for integrated public services), configuring four levels of

The achievement of pan-European spatial coverage⁴⁰ has led to the identification of priority data defined as “high value data”⁴¹ common to all EU Member States and characterised by dynamic nature, for which real-time collection and reporting must be provided.

The transposition of the INSPIRE Directive⁴² in Italy is identified with the establishment of the *National Geoportal (Geoportale Nazionale)*⁴³, a national interface infrastructure (API) for spatial information and environmental monitoring, managed by the

interoperability: legal, organisational, semantic and technical. V. VAIRA, *Innovation and Local Governance: the Government-As-A-Platform Approach*, in *Ius Publicum Network Review*, no. 2/2021.

⁴⁰ A. KOTSEV, M. MINGHINI, V. CETL, F. PENNINGA, J. ROBBRECHT, M. LUTZ, *INSPIRE - A Public Sector Contribution to the European Green Deal Data Space*, cit., 34. Key objectives for the evolution of INSPIRE were elaborated in the *INSPIRE Work programme 2021-24*, at the *15th Meeting of the INSPIRE Maintenance and Implementation Expert Group (MIG)*, 31 March 2022. Among recent initiatives, see *EuroGEO*, which envisages the investment of Union resources in the construction of a Global Earth Observation System (*GEOSS*) to develop a high-precision digital model of our planet to monitor and simulate human and natural activities, *Destination Earth: Earth's digital twin to support greener policies for a greener future*, presented on 10 November 2022.

⁴¹ Recital 66, Art. 13(1) and Annex I, EU Directive 2019/1024, cit.

⁴² Annex B of Law no. 88 of 7 July 2009, *Disposizioni per l'adempimento di obblighi derivanti dall'appartenenza dell'Italia alle Comunità europee - Legge comunitaria 2008* included INSPIRE among the normative acts of the Union to be transposed in full, in accordance with Article 1, c. 1a of the same law.

⁴³ Art. 1, c. 1, and Art. 8, Legislative Decree no. 32 of 27 January 2010, *Implementation of Directive 2007/2/EC establishing an Infrastructure for Spatial Information in the European Community (INSPIRE)*. The *National Geoportal* was developed by the Ministry of the Environment and constitutes a database pursuant to Art. 1, Law no. 633 of 22 April 1941, *Protection of copyright and other rights related to its exercise*, amended by Legislative Decree no. 169 of 6 May 1999, *Implementation of Directive 96/09/EC on the legal protection of databases*.

Ministry of the Environment⁴⁴. The *Geoportale* ensure the access point for sharing data and information with the European Union, replacing in Italy the former *Portale Cartografico Nazionale*.⁴⁵

Italian public administrations must adopt the same technical and interoperable standards for services and information in connection (Art. 6, Legislative Decree 32/2010).⁴⁶ The exchange, sharing and use of spatial and environmental data between Italy and the European Union must be conducted in an integrated manner with regional and local realities, with the obligation to share also spatial data that are referable to the lowest level of administration.⁴⁷

⁴⁴ A. MOLITERNI, *Il Ministero della transizione ecologica: una proiezione organizzativa del principio di integrazione?*, *Giorn. dir. amm.*, no. 4/2021, 439 ff. There have been many regulatory provisions aimed at reorganising and assigning the various functions to the Ministry of the Environment, established by Law no. 349 of 8 July 1986. See: U. POTOTSCHNIG, *Strumenti giuridici per la difesa della natura*, in *Foro Amm.*, III, 1970, 461 ff. Recently, the Constitutional Court, 22 October 2021, no. 198, affirmed that, given the State's exclusive competence in environmental matters, it is up to the national legislator to establish the organisational framework and the subjects exercising administrative functions cannot subsequently delegate them otherwise.

⁴⁵ Art. 8, Legislative Decree 32/2010, cit.

⁴⁶ See AgID, *Piano triennale per l'informatica nella PA - Aggiornamento 2021 - 2023*, 17 ff. S. ZHUBOFF, *The age of surveillance capitalism: the fight for the future at the new frontier of power*, Faber and Faber, London, 2019; L. FLORIDI, *La quarta rivoluzione. How the infosphere is transforming the world*, Milan, Cortina Raffaello, 2017; C. HESS, E. OSTROM, *Overview of the knowledge commons*, in C. HESS, E. OSTROM, *La conoscenza come bene comune (Understanding Knowledge As a Commons)*, Mondadori, Milan, 2009, spec. 9-10; A. ALBERICI, *Learning always in the knowledge society*, Mondadori, Milan, 2002. Most recently, on the knowledge society, see: R. CAVALLO PERIN, *Il contributo italiano alla libertà di scienza nel sistema delle libertà costituzionali*, in *Dir. Amm.*, no. 3/2021, 588 ff.

⁴⁷ Art. 1, c. 2, legislative decree 32/2010, cit. Art. 1, c. 2, lett. g), d.m. 10 November 2011, cit. Links to the individual national Geoportals are available on the INSPIRE website (section '*INSPIRE in your country*') and provide two

In violation of INSPIRE⁴⁸ and of the national implementation rules⁴⁹, the national *Geoportal* is not updated⁵⁰ since the data of the individual territorial realities have not yet been poured into it.⁵¹ This also leads to point out the failure to respect the necessary loyal cooperation between public administrations (art. 120 Const.) to guarantee the digital coordination of the territory (art. 117, c. 2, lett. *r*) Const.).

different viewers, one for the six high-value data, filtered by environmental sector, legislation or country, and the other for INSPIRE thematic data. In the past, see: E. CARLONI, *Digitalizzazione pubblica e differenziazione regionale*, in *Giorn. dir. amm.*, no. 6/2018, 698 ss.

⁴⁸ Spec. art. 1(2), art. 4(6), art. 18 and art. 21, INSPIRE Directive, cit.

⁴⁹ Articles 6 and 8, Legislative Decree 32/2010, cit.

⁵⁰ Recitals 5, 6, 20 and 27, INSPIRE Directive cited above.

⁵¹ A. SANDULLI, *Lo stato digitale. Pubblico e privato nelle infrastrutture digitali nazionali strategiche*, cit., 514 ff., which recalls the presence of eleven thousand *data centres* for *twenty-two thousand* public administrations. R. CAVALLO PERIN, G.M. RACCA, voce *Cooperazione amministrativa europea*, in *Digesto delle discipline pubblicistiche*, Utet, Torino, 2017, 191 ss.; D. U. GALETTA, *Coamministrazione, reti di amministrazioni, Verwaltungsverbund : modelli organizzativi nuovi o alternative semantiche alla nozione di "cooperazione amministrativa" dell'art. 10 TCE, per definire il fenomeno dell'amministrazione intrecciata?*, in *Riv. it. dir. pub. com.*, no. 6/2009, 1689 ff.

Specific online regional Geo-portals⁵² have been set up by the Regions and each local authority.⁵³ These were also operated in violation of the INSPIRE Directive⁵⁴ and the national implementing legislation⁵⁵, in a way that did not ensure the integration and consistency of geographic information at all levels of government⁵⁶ and did not comply with the specific rules on the obligation to make information available.⁵⁷

In the realisation of the common European Green Deal data space⁵⁸, the *Geoportale* can be the IT interface to make all spatial data available, thus ensuring proper management

⁵² Currently 22 regional geoportals are accessible online (Bolzano has set up its own, separate from the regional one).

⁵³ M. DEMICHELIS, *Gli strumenti digitali di coordinamento per la gestione del territorio*, in *federalismi.it*, no. 27/2022, 220 ff.

⁵⁴ Art. 18, INSPIRE Directive, cit.

⁵⁵ Spec. art. 11, legislative decree 32/2010, cit.

⁵⁶ BDTRE Regione Piemonte, last version of 22 March 2021, established by art. 10, l.r. Piemonte, 5 February 2014, no. 1. l.r. Lombardia, 11 March 2005, no. 12, *Law for the government of the territory* and subsequent amendments and supplements, which provided for the introduction of the regional *database*.

⁵⁷ Art. 6 and Art. 10, par. 1, Legislative Decree 32/2010, cit. Art. 8, par. 2(e) and par. 3, INSPIRE Directive, cit. In 2017, the *Summary Report on Status of implementation of the INSPIRE Directive in EU*, drafted by the EU Commission underlined that it's clear that the availability of a spatial data infrastructure as such does not guarantee its success. The usefulness and success of the infrastructure depends on how possible users are aware and are connected to this infrastructure. Without a specific tailored guidelines and application layer that satisfies existing use cases at national and EU-level the use of the infrastructure stays limited.

⁵⁸ EU Commission, *Staff Working document on Data Space*, SWD(2022) 45 final, cit.

of dynamic spatial data. These are commonly used⁵⁹, require frequent updates and are fundamental for the re-use of information⁶⁰, constituting a particularly high value for the economy and society.⁶¹

Compliance with the European INSPIRE regulations and constitutional provisions would ensure a common land-use management, through the inclusion of all geographical and territorial information in a single database⁶², with the obligation to unify the languages used in the preparation of urban planning tools at each administrative level.⁶³

Indeed, the new approach to urban planning and land-use management could not fail to integrate the available data throughout the territory.

⁵⁹ Recital No. 31, EU Directive 2019/1024, cit.

⁶⁰ Recital 13, EU Directive 2019/1024, cit.

⁶¹ Recital 13, EU Directive 2019/1024, cit.

⁶² E. SÁNCHEZ JORDÁN, C. MAIOLI, *E-government and Infrastructure for Spatial Information: from Cadastre to INSPIRE*, cit., 453 ff. From an interpretative point of view, Art. 2(2) TFEU. O. PORCHIA, *Competenze dell'Unione Europea*, in *Treccani - Diritto online*, 2017; D.U. GALETTA, *Il diritto ad una buona amministrazione europea come fonte di essenziali garanzie procedurali nei confronti della Pubblica Amministrazione*, in *Riv. it. dir. pub. com.*, 3-4/2005, 819 ss.

⁶³ Art. 4(6), INSPIRE Directive, cit.; Art. 1(2), Legislative Decree 32/2010, cit. F. BRANCA, *Le fonti del diritto sull'amministrare pubblico dell'Unione Europea tra competenza, sussidiarietà e armonizzazione*, in *Dir. Amm.*, no. 3/2021, 681. At the national level, F. TRIMARCHI BANFI, *Sul regionalismo cooperativo*, in *Dir. Amm.*, no. 1/2021, 123.

3. URBAN PLANNING AND LAND-USE MANAGEMENT IN ITALY: URBAN REGENERATION AND SOIL CONSUMPTION

In Italy, land-use management and urban planning (known as "*governo del territorio*") are administrative function assigned to the concurrent competence of the State and the Regions (Article 117, c. 3, Const.), which implies that the State defines the principles the detailed regulations of the Regions and local entities must be referred to.⁶⁴

Since the first national urban-planning law⁶⁵, land-use management has experienced a gradual enlargement of its meanings: indeed, in the past it only regulated activities concerning the built-up areas⁶⁶, while recently land-use management provisions refer to the rational structure of urban components and cities, hence the crucial role of the urban-planning procedures.⁶⁷

Due to the climate and environmental crisis and the progressive desertification of several unused urban areas, public administrations currently must enhance urban regeneration to implement the European goal of limiting soil consumption.

⁶⁴ Constitutional Court, 27 December 2018, No 245 and Constitutional Court, 13 March 2014, No 46 and Constitutional Court, 28 June 2004, No 196.

⁶⁵ Law no. 1150 of 17 August 1942, *Legge Urbanistica*.

⁶⁶ G. SCIULLO, voce "*Urbanistica*", in *Dizionario di diritto pubblico* (dir. by S. CASSESE), Giuffrè, Milan, 2006, 6116 ff. Constitutional Court, 8 July 1958, no. 58.

⁶⁷ M. PACELLI, *La pianificazione urbanistica nella Costituzione*, Giuffrè, Milan, 1966, 8. Cons. Stato, 10 May 2012, no. 2710.

Firstly, urban regeneration has been defined as the set of urban planning, architectural and socioeconomic interventions that are carried out on a portion of territory in a coordinated manner, with the aim of increasing the reuse, redevelopment and replacement of the built environment, within the framework of sustainable actions.⁶⁸

Urban regeneration and reuse of buildings are interventions aimed at enhancing the transformation of cities, raising the level of ecological-environmental protection and rationalising the use of resources to tackle the „crisis of the city“. ⁶⁹

The contradictions that the city presents - such as the dichotomy between the centre and the suburbs and the increase of abandoned urban areas⁷⁰ - are combined with the need

⁶⁸ Sustainable development" means not only environmental, but also social and economic, democratic and institutional, B. BOSCHETTI, *Rigenerazione e legislazione regionale: verso un diritto (del governo del territorio) rigenerativo?*, in *Riv. quadr. dir. amb.*, no. 2/2022, 63 ff. For a deep analysis of the urban regeneration tools see the contributions in *Riv. quadr. dir. amb.*, no. 2/2022. P. CARPENTIERI, *Il "consumo" del territorio e le sue limitazioni. La "rigenerazione urbana"*, in *federalismi.it*, no. 1/2020, 9-10; M. CAMMELLI, *Re-cycle: pratiche urbane e innovazione amministrativa per ricomporre le città*, in E. FONTANARI, G. PIPERATA (eds.), *Agenda RE-CYCLE. Proposals for reinventing the city*, Il Mulino, Bologna, 2017, 53 ff.

⁶⁹ A. GIUSTI, *La rigenerazione urbana. Temi, questioni e approcci all'urbanistica di nuova generazione*, Editoriale Scientifica, Napoli, 2018, 18.

⁷⁰ A. ROMEO, *Sviluppo economico e disuguaglianze territoriali: il divario Nord-Sud nell'Italia del nuovo millennio*, in *Dir. Amm.*, no. 4/2020, 807 ff.; R. CAVALLO PERIN, *L'ordinamento giuridico delle città*, in *Munus*, 2/2019, 365 ff.; A.M. POGGI, *Il PNRR come possibile collante dell'unità repubblicana? (riflessioni in margine al regionalismo e al divario Nord-Sud)*, in *Le Regioni*, n- 1-2/2019, 199 ff.; S. CASSESE, *Dallo sviluppo alla coesione. Storia e disciplina dell'intervento pubblico per le aree insufficientemente sviluppate*, in *Riv. trim. dir. pub.*, no. 2/2018, 592 ff.; H. LEFEVBRE, *The right to the city*, Ombre corte, Verona, 2014; R. CAVALLO PERIN, *Beyond the municipality: the city, its rights and its rites*, in *Italian Journal of Public Law*, 2/2013, 307-315.

for infrastructure, physical and social improvements and efficiency, as well as the digital and environmental changes already mentioned.⁷¹

The main references to urban regeneration can be recalled in the European policies related to the development of cities, in the field of territorial cohesion.⁷² This constitutes a strategic factor for implementing the European integration process⁷³ (Art. 4, par. 2, letter *c*),

⁷¹ A. GIUSTI, *La rigenerazione urbana. Temi, questioni e approcci all'urbanistica di nuova generazione*, cit., 20.

⁷² European Council, *Next Generation EU*, 13 July 2021. Then Italian Government - Presidency of the Council of Ministers, *National Recovery and Resilience Plan*. #nextgenerationitalia, April 2021: Mission 5 of the Italian NRP entitled "Inclusion and Cohesion" - Component 3. F. MANGANARO, voce *Politiche di coesione*, in *Enc. del diritto - I Tematici*, III, Giuffrè, Milano, 2022, 839 ss. S. CASSESE, *Dallo sviluppo alla coesione. Storia e disciplina vigente dell'intervento pubblico per le aree insufficientemente sviluppate*, in *Riv. trim. dir. pub.*, no. 2/2018, 579 ss.

⁷³ R. CAVALLO PERIN, *L'organizzazione delle pubbliche amministrazioni e l'integrazione europea*, in L. FERRARA, D. SORACE (eds.), *A 150 anni dall'unificazione amministrativa europea*, vol. I, Firenze University Press, Firenze, 2016, 3 ff. Among the various Directives that have influenced spatial governance at the national level, Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (esp. Art. 10, for example).

TFEU), by the adoption of legislative acts (including non-binding ones⁷⁴) which provide urban policies to improve the quality of life in cities⁷⁵ for the achievement of the smart city.⁷⁶

Various legal concepts (e.g. human regeneration, economic regeneration or cultural regeneration⁷⁷) have gradually identify a coordinated set of supra-local actions aimed at

⁷⁴ E.g. 'European Spatial Development Perspective. Towards a balanced and sustainable development of the territory of the European Union (ESDP)' (Informal Council of Ministers responsible for spatial planning in Potsdam, May 1999) last amended on 5 January 2004. Recently, Informal meeting of ministers responsible for spatial planning, spatial development and/or territorial cohesion, *Territorial Agenda 2020. A Future for All Places*, Germany, 2020; UN, *Transforming Our World: The 2030 Agenda for Sustainable Development*, A/RES/70/1, 2015; *Paris Agreement*, 12 December 2015; UN, *Habitat III - New Urban Agenda*, 2016; *Urban Agenda for the EU - Pact of Amsterdam*, 30 March 2016; OECD, Regional Development Ministerial, *Megatrends: building better futures for Regions, Cities and rural areas*, 19-20 March 2019. M. ELIANTONIO, *Soft Law in Environmental Matters and the Role of the European Courts: Too Much of Too Little?*, in *Yearbook of Eur. Law*, No. 32/2018, 496 ff.

⁷⁵ Art. 3(3) TEU; Arts. 4, 14, 174-178 TFEU; Art. 36 ECHR. B.G. MATTARELLA, *Il problema della povertà nel diritto amministrativo*, in *Riv. trim. dir. pub.*, no. 2/2012, 359 ff.

⁷⁶ European Commission, *Guidelines for Member States on Integrated Sustainable Development*, EGESIF 15-0010-01, 18/5/2015; most recently *European Regional Development Fund - 2021 -2027, European Territorial Cooperation Programme, Urbact IV Cooperation Programme CCI 2021TC16FFIR001*, June 2022. European Parliament, *Mapping Smart Cities in the EU*, 2014 and EU Commission, *The Urban Dimension of EU Policies - Key Features of an EU Urban Agenda*, COM(2014), 18 July 2014. See: E. CHITI, B. MARCHETTI, N. RANGONE, "Smart cities" e Amministrazioni centrali di fronte all'intelligenza artificiale: esperienze a confronto, in *BioLaw Journal*, n. 1/2022, 251; E. CARLONI, M. VAQUERO PIÑERO *Le città intelligenti e l'Europa. Tendenze di fondo e nuove strategie di sviluppo urbano*, in *Ist. del federalismo*, no. 4/2015, 865; E. FERRERO, *Le smart cities nell'ordinamento giuridico*, in *Foro amm.*, no. 4/2015, 1267-1286; J.B. AUBY (ed.), *Le futur du droit administratif. The future of administrative law*, SciencesPo, LexisNexis, Paris, 2019, spec. R. CAVALLO PERIN, G. M. RACCA, *Smart Cities for an Intelligent Way of Meeting Social Needs*, 431 ff.; C. LAURI, voce *Smart city*, in *Digesto delle discipline pubblicistiche*, Giuffrè, Milano, 2021.

⁷⁷ S. RUSCI, *Sulla non riproducibilità della rigenerazione market based. Dove e quando la rigenerazione non arriva*, in *Riv. quadr. dir. amb.*, no. 2/2022, esp. 225-227.

resolving situations of urban, infrastructural, environmental, landscape or social degradation, for the preservation and restoration of the soil with its related ecosystem functions.

However, the fundamental role of economic operators and enterprises in the initiative and realisation of regeneration projects has to be considered: the increasing participation of private individuals and associations is fundamental for social participation goals, albeit the major regeneration projects are carried out through the investments of businesses and enterprises.⁷⁸

The legal framework of urban regeneration has been recently stimulated by the provisions of the Italian National Recovery and Resilience Plan⁷⁹, which amended the State regulations for the function of land-use management by conforming legal instruments⁸⁰ and principles (e.g. the so-called „do not significant harm“⁸¹).

⁷⁸ R. DI PACE, *La rigenerazione urbana a guida pubblica*, in *Riv. quadr. dir. amb.*, no. 2/2022, 34 ff; G. AVANZINI, *La rigenerazione urbana a guida privata*, in *Riv. quadr. dir. amb.*, no. 2/2022, 44.

⁷⁹ Art. 2, c. 1, Decree-Law No. 59 of 6 May 2021, *Misure urgenti relative al Fondo complementare al Piano nazionale di ripresa e resilienza e altre misure urgenti per gli investimenti*. B. BOSCHETTI, *Regeneration and regional legislation: towards a regenerative (spatial government) law?*, cit., 84.

⁸⁰ B. BOSCHETTI, *Regeneration and regional legislation: towards a regenerative (spatial government) law?*, cit., 76. E.g.: Integrated plans art. 21, d.l. 6 November 2021, no. 152, *Disposizioni urgenti per l'attuazione del Piano nazionale di ripresa e resilienza (PNRR) e per la prevenzione delle infiltrazioni mafiose*, converted with amendments by l. 29 December 2021, no. 233.

⁸¹ Art. 2(1)(6), Regulation (EU) 2021/241 of the European Parliament and of the Council of 12 February 2021 establishing the Facility for Recovery and Resilience.

As aforementioned, urban regeneration is closely connected with the reduction of soil consumption, which in the European context reminds also to the "oil protection"⁸² and to the progressive limitation of new land use.⁸³

In 2006⁸⁴, the regulation of soil consumption had already been provided in a proposal for a EU Directive which aimed to set out protections against the consumption of raw materials, energy, water, air, land and soil, imposing efficient and sustainable management to minimise environmental impact and assuming the disposal of residual waste and a circularity in the retrieval and use of resources.

⁸² 'Soil sealing' or 'land take', see Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *EU Soil Strategy 2030 Healthy Soils for the Benefit of People, Food, Nature and the Climate*, 17 November 2021, COM(2021) 699 final; Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Roadmap to a Resource Efficient Europe*, 20 September 2011, COM(2011)571.

⁸³ The EU 2030 Strategy states that Member States should have targets to be implemented at national, regional and local level by 2023, EU Commission, *EU Soil Strategy 2030 Healthy Soils for the Benefit of People, Food, Nature and Climate*, cit. See also EU Commission, 13 February 2012, *Guidelines on good practice for limiting, mitigating and compensating soil sealing*, 101 final/2, 2012, drafted on the basis of the *Soil Thematic Strategy*, COM(2006) 232, cit.; Council of Europe, *European Soil Charter*, June 1972.

⁸⁴ The European Directive of 22 September 2006, No 232, *Proposal for a Directive of the European Parliament and of the Council establishing a framework for the protection of soil and amending Directive 2004/35/EC*, is not the first European guideline on soil protection: Council of Europe, *European Soil Charter*, 1972 and, following strategies such as European Commission, 15 May 2001, No 246, *Sustainable Development in Europe for a Better World: European Union Strategies for Sustainable Development*. Mention should also be made of: the Toledo Declaration on Integrated Urban Regeneration, signed on 22 June 2010, following the informal meeting of European ministers responsible for urban development; the Amsterdam Pact (*Urban Agenda for the EU*), 30 May 2016; the inclusion of the concept of territorial cohesion in the Lisbon Treaty in 2011, prior to the launch of the ESPON Programme (*European Spatial Planning Observation Network*).

Such a concept has contributed to the recognition of soil as a non-inexhaustible resource, according to the international theory of the *commons*⁸⁵, which on the one hand theorises the prevalence of private ownership with the consequent parcelling out of the vast resource, but on the other hand affirms the need to strengthen the public administrations authority.⁸⁶

In the European context, soil is currently an environmental matrix requiring high protection (Art. 11, TFEU and Art. 37, ECHR).

The need for coordinated measures and actions at a European, national and local level guarantees the sustainability of land-use management⁸⁷ that thus pursues the prevention of land consumption through an integrated approach in the elaboration of urban plans by the States⁸⁸ and through preventive digital analyses on land use rates.

⁸⁵ E. OSTROM, *Governing the commons*, in Cambridge University Press, 1990.

⁸⁶ In the international community, cf. elaboration of the *Sustainable Development Goals* (SDGs) of the United Nations, esp. Goal No. 11, UN, *Transforming our World: The 2030 Agenda for Sustainable Development*, 2015: Fostering economic and social growth, for the goal of transforming cities into safe, inclusive, sustainable and lasting places.

⁸⁷ G.A. PRIMERANO, *Il consumo di suolo e la rigenerazione urbana. La salvaguardia di una matrice ambientale mediante uno strumento di sviluppo sostenibile*, Editoriale Scientifica, Napoli, 2022, 36 ss.

⁸⁸ See European Commission, *Guidelines on good practice for limiting, mitigating and compensating soil sealing*, 2012, 17-18. Several examples of national legislations that have intervened on the issue are given in the document: in Latvia, planning limits have been imposed along the Baltic Sea coast, the Gulf of Riga, surface waterways (rivers and lakes) and in forests around cities to reduce or eliminate anthropogenic damage. The Danish town planning law clearly restricts the building of large shops and shopping centres on undeveloped land outside the largest cities and encourages retailing in small and medium-sized towns, opposing the construction of scattered facilities in rural

4. TEMPORARY USE OF URBAN SPACES AS A TOOL FOR URBAN REGENERATION

The environmental, social and economic sustainability of cities in the digital land-use and territorial management can be achieved by counteracting the progressive disuse and abandonment existing building stocks in Italy.

Buildings and various kinds of spaces, whether publicly or privately owned including those of historical or cultural value, are often disrepaired or under-used and are therefore not of any interest to the market.⁸⁹

The non-use of urban assets and spaces creates a *vacuum* in urban space, leading to its gradual abandonment, with the consequent loss of economic and social value, and the deterioration of the conditions of the whole area, with particular reference to the loss of public safety.⁹⁰

regions where the population is declining. In Germany, the town council of Barnstorf has adopted a sustainable approach to land management since 2009."

⁸⁹ According to ISTAT data from the 2011 Census, there are approximately 13709245 buildings in use and 743435 buildings not in use in Italy, making a total of 14452680 buildings in absolute values. The new permanent population and housing census is in progress and the Areale survey will end on 18 November 2021.

⁹⁰ From a sociological point of view, see the recent analysis of "urban gentrification", in L. LEEDS, *Gentrification, urban policy and urban geography*, in *Space and Polity, Resituating Geography's Relationships with Public Policy*, no. 2/2022, 109 ss.

The connection between the non-use of an asset or a space, its deterioration and the lack of attractiveness of the market is one of the components that identify degraded urban areas⁹¹, often identify as brownfields. The legal definition of brownfield sites is controversial.

The European Union has adopted the concept of brownfield sites, which refers to a situation of disuse and abandonment.⁹² More precisely, brownfields are mostly industrial and polluted sites for which reuse is envisaged to enhance their characteristics and location due to the presence of possible building and plant structures functional for past productive activities.⁹³

To achieve urban regeneration, a new legal instrument of urban planning in degraded areas has been developed: the temporary use.

⁹¹ At the national level, reference is made to Article 5, c. 9, Law Decree No. 70 of 13 May 2011, *Semestre Europeo - Prime disposizioni urgenti per l'economia*, converted with amendments by Law No. 106 of 12 July 2011.

⁹² CLARINET Project, a *Working Group* founded by the European Commission, DG *Research*, and composed of institutions from 16 European countries engaged in the identification of policies and strategies aimed at brownfields restoration. According to this project, brownfields are: "sites that have been affected by the former uses of the site and the surrounding land; are derelict or underused; have real or perceived contamination problems; are mainly in developed urban areas; require intervention to bring them back to beneficial use." see: APAT, Proposal for guidelines for the environmental restoration and economic valorisation of brownfields, 2006. The need for positive actions to contrast the phenomena of social exclusion for the integration of the populations living in brownfields has been realised, for instance, in the institution of the "urban free zones", cf. art. 1, c. 340 ff., l. 27 December 2006, no. 296, *Disposizioni per la formazione del bilancio annuale e pluriennale dello Stato (2007 financial law)* and s.m.i., identified on the basis of indicators of social degradation (unemployment, schooling, etc.) and governed by public support for new economic initiatives: M. PASSALACQUA, *Politiche pubbliche e strumenti giuridici per rigenerazione e riuso di aree industriali e dismesse*, in M. PASSALACQUA, G. POZZO (eds) *Diritto e rigenerazione dei brownfields. Amministrazione, obblighi civilistici, tutele*, Giappichelli, Torino, 2019, 5 ff., which underlines the role of European funding programming.

⁹³ G. PIPERATA, *La rigenerazione dei brownfields: una prospettiva giuridica*, in M. PASSALACQUA, G. POZZO (eds.), *Diritto e rigenerazione dei brownfields. Amministrazione, obblighi civilistici, tutele*, cit., XXVII.

It is expression of the new „temporary urbanism“⁹⁴, a special planning and design city function to counter the economic crisis in the real estate and infrastructure sector through the reuse of existing assets. Temporary uses gradually developed in the United States⁹⁵, in Europe and in Italy⁹⁶ with the aim of regenerate not only a single space or building, but the entire urban area.

The tool thus indicates the time-bound use of unused spaces in cities and metropolitan areas, in cooperation with citizens as users who participate in the regeneration process. Since the development of the tools in the European context, the temporary use of urban assets and spaces has been configured as a discretionary choice of local administrations, which establish criteria and modalities for its concrete implementation.⁹⁷

⁹⁴ P. BISHOP, L. WILLIAMS, *The temporary city*, Routledge, London, 2012, 21 ff.

⁹⁵ Mainly the reference is to US social practices related to emergency housing, the organisation of cultural events and urban agriculture. Some national surveys conducted by the binational *American Community Garden Association* reveal some 869 active gardens at the end of the 1990s, but it is with 2010 that the greatest changes and innovations in the discipline and spread of urban gardens in *New York take place*, to the point that the municipality has drawn up a series of rules and criteria so that public participation in these activities, progressively aimed at producing profit for those who take care of them, can be maintained effective. A. MADANIPOUR, *Temporary use of spaces: Urban processes between flexibility, opportunity and precarity*, in *Urban studies journal*, SAGE, 2017. Most recently, see *Quando l'agricoltura entra nel paesaggio urbano*, in *Osservatorio Riuso*, 18 April 2018.

⁹⁶ In Italy, the innovative scope of the concept of temporary and provisional use of an asset was stressed as early as 2010, E. FONTANARI, G. PIPERATA (eds.), *Agenda RE-CYCLE. Proposte per reinventare la città*, cit., 15.

⁹⁷ In Italy, see: F. CORTESE, *Nuovi principi costituzionali e ridefinizione progettuale dello spazio operativo degli enti territoriali*, in *Munus*, no. 3/2021, 5 ff.

The aim of urban regeneration of degraded spaces and areas has made temporary use a European and international best practice to attract funds, to improve tourism and urban safety, and on a larger scale, to achieve the goals of sustainable land development.⁹⁸

The public administrations need to respond to citizens' requests for the use of abandoned property buildings and spaces, as those awaiting supervision and safekeeping, to prevent vandalism and squatting. This underpins the development of the temporary use tool⁹⁹, of which several informal experiences have been recorded precisely in developing countries.¹⁰⁰

⁹⁸ At European level, there are numerous case studies on temporary uses, e.g. "*Einfach-Mehrfach (Single-Multiple)*", Vienna, Austria, SEEDS, *Temporary Use Practices*, 2015. Different districts in Vienna have used the practice of temporary use since the late 1990s, in order to increase the inclusion of individuals from different cultures and backgrounds, offering them a recreational environment in a city context and enabling the re-use of public (schools, pedestrian walkways) and private (sports facilities, vacant plots of land) buildings and environments. This was possible through groups of citizens which drew up a set of guidelines concerning the use of spaces and the rules associated with them, and then presented them to the different city halls, which individually took over the financing of the projects. From the responsibility point of view, it has been stated that this is of the municipal office responsible for the management of urban public property. As a non-exhaustive example of the many experiences arising in the European Union, see also the case of *Brussels*, which involved *Priemstraat 19*, in the heart of the historical city centre, depopulated since the 2000s as many affluent citizens moved to live in the city's peripheral belts, causing a progressive abandonment of the historical centre. Therefore, the historic building in *Priemstraat* was taken over by an association, which entered into an agreement and project with other association networks to secure the temporary use of the premises.

⁹⁹ A. SIMONATI, *Rigenerazione urbana, politiche di sicurezza e governo del territorio: quale ruolo per la cittadinanza?*, in *Riv. giur. ed.*, no. 1/2019, 31 ff.; ID., *Salvaguardia del patrimonio culturale immobiliare e ruolo degli enti locali: riflessioni alla luce della giurisprudenza recente del Consiglio di Stato*, in *Riv. giur. urb.*, no. 3/2018, 369 ff.

¹⁰⁰ F. GIGLIONI, *Le città come ordinamento giuridico*, in *Ist. del federalismo*, no. 1/2017, 29 ff. On the development of new European policies and a new idea of the 'city of the future', E. CARLONI, M. VAQUERO PIÑERO, *Le città intelligenti e l'Europa. Tendenze di fondo e nuove strategie di sviluppo urbano*, cit., 865; E. FONTANARI, G.

However, the citizen participation aimed at 'reinventing' the city does not seem to be limited to a bottom-up approach.¹⁰¹ Indeed, temporary use has been addressed by European projects¹⁰², documents and governance guidelines¹⁰³ that have involved numerous

PIPERATA (eds.), *Agenda RE-CYCLE*, cit., 12; A. MASSERA, *Oltre lo Stato: Italia ed Europa locale e globale*, in *Riv. trim. dir. pub.*, no. 1/2001, 12-13.

¹⁰¹ Numerous collections of urban regeneration operations, with annexed implementation models, have been created that have also allowed some Italian cities to collaborate. Reference is made to the case of the participation of Rome, Venice and Milan (also present in the *steering committee*) in the *network*, C40-cities, an international network established in 2005 that counts the participation of mayors of cities and metropolises from all over the world. The network has also created, among others, the *Reinventing cities* platform, a global competition that seeks to accelerate the development of decarbonised and resilient urban regeneration worldwide.

¹⁰² Reference is also made to the European Project "*Strategies for temporary uses - potential for development of urban residual areas in European metropolises (URBAN CATALYSTS)*", financed under the *FP5-EESD - Programme for research, technological development and demonstration on "Energy, environment and sustainable development, 1998-2002"*.

¹⁰³ Consider one of the first case-study on the topic, "*HausHalten e.v. (Household)*", Leipzig, Germany, N. BLUMNER, *Planning for the Unplanned: Tools and Techniques for Interim Use in Germany and the United States*, German Institute of Urban Affairs, 2006: a *non-profit* association, HausHalten e.V., founded in 2004 in Germany, carried out renovation and regeneration processes on entire uninhabited neighbourhoods in the city to revitalise entire urban areas. The aim was to use these areas to host cultural events organised by associations, theatre companies or artists. The association is supported and financed by the city but it obtained funds from private investors in exchange for sponsors and was also partly financed by the European project Urban II, following the presentation of the urban regeneration project through the temporary use. The association stipulates licence agreements with the owner of the building or area it intends to use and the right to use is transferred to the association for five years, which in turn passes it on to the final users of the property. They are responsible for paying the fees for the period of time that the use of the building or property occurs. See *European Project "Finch - Financial Impact on National Cultural Heritage"*.

States and have made some of the largest European cities leaders in the development of such a practice.¹⁰⁴

According to the Italian regional regulations¹⁰⁵ and to the State provision which introduced the temporary uses to amend and supplement the Consolidated Law on Construction in 2020¹⁰⁶, temporary use may now concern public and private degraded assets to challenge abandonment or underuse, for the development of initiatives of significant public interest of limited duration.

¹⁰⁴ This is the case of the 'Precare' project, which ended in 2009 and involved the cities of London, Barcelona and Brussels since 2003 with the collaboration of the *Citymine(d)* group: Urbact - REFILL, *A Journey Through Temporary Use*, available online.

¹⁰⁵ See some regional regulations, as: Lazio Regional Law no. 10/2017, cit.; Lombardy Regional Laws no. 15/2017 and no. 16/2017; Article 8, Veneto Regional Law no. 14/2017; Emilia-Romagna Regional Law no. 24/2017. It should be noted that recently, the regional law Riparti Piemonte, 29 May 2020, no. 13, *Interventi di sostegno finanziario e di semplificazione per contrastare l'emergenza da COVID-19*: this legislation, presents, in Chapter II, "Misure urgenti e temporanee di semplificazione in materia urbanistica e per il rilancio dell'edilizia", the introduction in the regional legal system of the discipline of temporary use (art. 79), provided for in detail. It was challenged by the President of the Council of Ministers and deposited at the Chancellery of the Constitutional Court on 23 July 2020: the Court ruled with sentence no. 151 of 11 May 2021, in which it declared the trial extinct.

¹⁰⁶ The subject of reflection is Article 10, c.1, lett. *m-bis*), Law No. 120 of 11 September 2020, *Conversione in legge, con modificazioni, del decreto-legge 16 luglio 2020, n. 76, recante misure urgenti per la semplificazione e l'innovazione digitale*, which provides for the insertion of Article 23-*quater*, Presidential Decree No. 380 of 6 June 2001, T.U. Edilizia.

Temporary uses also allow the administration to guarantee the use of an asset or area for the time necessary to change its use when implementing recovery, redevelopment and regeneration plans that involve renovation work.¹⁰⁷

The local public authority can allow temporary uses of public and private assets also for uses not directly permitted by the city planning instrument in force. This issues can help pursuing the public interest through to verification of compliance with the socio-economic and environmental requirements.¹⁰⁸

Temporary use can be identified as an emerging practice for citizens, whereby the administration makes the community aware of its potential to intervene in the area where it lives and, above all, how to intervene. The purpose of introducing the possibility of assigning a temporary use to an area is to allow an experiment to be carried out with a view to assigning a new use to a building or a public or private space. If this experiment is successful, it will be the starting point for the administrative procedure for changing the use in the urban planning tool.¹⁰⁹

¹⁰⁷ See the 'Scali Milano' project, Municipal Council Resolution, 14 November 2016, no. 44: the city of Milan, following the approval of a resolution of direction by the City Council, has launched a maxi-project for the strategic regeneration of Milan's urban areas occupied by the seven disused railway yards. For all, see the 'Agroscalo2020' project, planned and launched for the Porta Genova (Milan) airport: according to the project, the entire production chain (from cultivation to processing) of more than 150 species of herbs, sprouts, flowers and vegetables will be developed in the railway area, up to sale. Also part of the project will be a panoramic greenhouse, a wooden pavilion, a weekly market, and equipped fitness areas, all in the spirit of enhancing the 'urban countryside'.

¹⁰⁸ Art. 23-*quater*, c. 1 and c. 2, T.U. Edilizia, cit.

¹⁰⁹ A. SIMONATI, *Il giudice amministrativo nei meandri del centro storico: alla ricerca di un paradigma unitario, fra governo del territorio e salvaguardia del patrimonio culturale*, in *Nuove Autonomie*, no. 2/2021, 505 ff.; M. DE

This makes temporary use a „precarious“ use.¹¹⁰ Precariousness thus becomes an instrumental feature that acts in derogation of the use the urban planning tool provided for without changing it.

As mentioned above, the participation of individuals through new modalities is fundamental for the dissemination and implementation of such interventions.¹¹¹ At the local level, it will take the form of horizontal cooperation actions designed to legitimise the citizen as an effective user of the common good by the public authorities.¹¹²

In this context, the technological revolution, which has affected all areas of public action, has also contributed to changing individual participation according to the new social paradigms of the knowledge-based society.¹¹³ The democratisation of participation processes in the citizen-administration relationship (so-called e-democracy) is based on and

BENEDETTO, *Controlli della pubblica amministrazione sui privati: disfunzioni e rimedi*, in *Riv. trim. dir. pub.*, no. 3/2019, 855 ff.

¹¹⁰ R. CAVALLO PERIN, *Proprietà pubblica e uso comune dei beni tra diritti di libertà e doveri di solidarietà*, in *Dir. Amm.*, n. 4/2018, 856 ss.

¹¹¹ A. FIORITTO, *La (debole) legalità urbanistica: il caso della rigenerazione urbana*, in M. PASSALACQUA, B. POZZO, *Diritto e rigenerazione dei brownfields. Amministrazione, obblighi civilistici e tutele*, cit., 69.

¹¹² See: D.U. GALETTA, *Digitalizzazione e diritto ad una buona amministrazione (Il procedimento amministrativo, fra diritto UE e tecnologie ICT)*, in R. CAVALLO PERIN, D. U. GALETTA (ed.), *Il diritto dell'amministrazione pubblica digitale*, cit., 85 ss. In the past, R. FERRARA, *La partecipazione al procedimento amministrativo: un profilo critico*, in *Dir. Amm.*, no. 2/2017, 217 ff.; G. ARENA, *Amministrazione e società. Il nuovo cittadino*, in *Riv. trim. dir. pub.*, no. 1/2017, 43 ss.; F. BENVENUTI, *Il nuovo cittadino. Tra libertà garantito e libertà attiva*, Marsilio, Venezia, 1994.

¹¹³ T.E. FROSINI, *Il costituzionalismo nella società tecnologica*, in *Dir. dell'informazione e dell'informatica*, no. 3/2020, 465 ff.; E. D'ORLANDO, *Profili costituzionali dell'amministrazione digitale*, in *Dir. Inf.*, no. 2/2011, 213 ff.

simultaneously produces big data, which become a cognitive asset useful for influencing the new powers.¹¹⁴

This implies another concept of the individuals role within the State: the digital citizenship. The use of applications and technologies is increasingly forcing governments and public administrations to involve users and citizens to a greater extent in the decision-making process, especially in a sector such as urban policy. The aim is to create transparent and participatory procedures that are also characterised by a high degree of political and administrative discretion, such as the planning and management of urban realities.¹¹⁵

In Italy, the definition of smart citizenship generally refers to the urban and local level - also through the responsibilities assigned to the various local authorities. It is being enriched at the national level by the catalogue of rights and privileges established by the

¹¹⁴ E.N. FRAGALE, *La cittadinanza amministrativa al tempo della digitalizzazione*, in *Dir. Amm.*, no. 2/2022, 474 ff.

¹¹⁵ Reference is made to research and studies on so-called *gamification*: G. SGUEO, *Major for a Day. Is Gamified Urban Management the Way Forward?*, in J.B. AUBY (ed.), *Le futur du droit administratif. The future of administrative law*, LexisNexis, Paris, 2020, 411 ff.; G. SGUEO, *Games, Powers & Democracies*, Bologna University Press, Bologna, 2018, *passim*.: Gamification strategies are based on the idea that games have great potential in capturing citizens' attention and stimulating their interest with fun (intrinsic motivator) and rewards (extrinsic motivator). However, gamification is not necessarily intended to formalise the role of citizens in the decision-making process; on the contrary, it can be well used as a filter to limit the pressure of civic actors or to pursue purposes complementary to participation: for instance, information, bearing in mind that formal and unconventional channels for involving citizens in the decision-making process can coexist. However, local authorities, retain full control over the subject matter and time allocated to participants for gamified processes. This makes gamification processes easier to manage, but also riskier, due to the greater likelihood that participants may be discouraged from participating.

Digital Administration Code¹¹⁶, and by the drafting by the European institutions of a new-generation „bill of rights“¹¹⁷. This overcomes the public-private relationship by projecting „physical“ citizenship into the cyberspace.

Indeed, the *European Declaration on Digital Rights and Principles for the Digital Decade*¹¹⁸ by the European Parliament, the Council and the Commission, regulates how the fundamental values and rights developed *offline* should be applied in the cyberspace.

¹¹⁶ Legislative Decree No. 217 of 13 December 2017, *Disposizioni integrative e correttive al decreto legislativo 26 agosto 2016, n. 179, concernente modifiche ed integrazioni al Codice dell'amministrazione digitale, di cui al decreto legislativo 7 marzo 2005, n. 82, ai sensi dell'articolo 1 della legge 7 agosto 2015, n. 124, in materia di riorganizzazione delle amministrazioni pubbliche*; as well as Articles 3-11, sect. II, Legislative Decree No 82 of 2005, the *Digital Administration Code (Codice dell'amministrazione digitale)*, which affirms the right of anyone to use in an accessible and effective manner the digital tools provided by the Code, the right to access simple and integrated online services, as well as the right to possess a digital identity and domicile. It was then asserted that the provisions of the CAD regarding the protection of the new digital citizenship rights were complemented by the rules provided for in Legislative Decree No. 33 of 14 March 2013, *Riordino della disciplina riguardante il diritto di accesso civico e gli obblighi di pubblicità, trasparenza e diffusione di informazioni da parte delle pubbliche amministrazioni*, and by Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016, *General Data Protection Regulation*, Art. 94, Legislative Decree No. 207 of 8 November 2021, *Implementation of Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018, establishing the European Electronic Communications Code (recast)* The protection of such subjective legal positions, provided for in the administrative court by Art. 3, CAD and by Articles 50 and 52, c. 4, lett. e), Legislative Decree no. 33/2013, cit.) is the subject of reflections in E.N. FRAGALE, *La cittadinanza amministrativa al tempo della digitalizzazione*, cit, 500 ff., who takes up M. TRIMARCHI, *L'art. 41 della Carta europea dei diritti fondamentali e la disciplina dell'attività amministrativa in Italia*, in *Dir. Amm.*, no. 3/2011, 537 ff.

¹¹⁷ In addition to those provided for in the CAD, cit., defined as the strong but not exclusive core of administrative digital citizenship.

¹¹⁸ Declaration of the European Parliament, the Council and the European Commission, 23 January 2023, *European Declaration on Digital Rights and Principles for the Digital Decade*. The document is defined as having no preceptive value, but political value, see para. 3, Communication from the Commission to the European Parliament,

It establishes the EU commitment to strengthening the democratic framework for the benefit of each individual, improving the necessary provisions in international framework to ensure that individual digital values and rights are respected through responsible and diligent action by all public and private actors.¹¹⁹

Among the digital rights, particular reference is provided for the „Digital Public Services“ (Chapter II, point 7 (a), (b) and (c) of the *Declaration*) whereby every person should have *online* access to all public services in the Union, guaranteeing secure and interoperable accessibility, with large-scale re-use of public administration information.¹²⁰

the Council, the European Economic and Social Committee and the Committee of the Regions on the development of a European Declaration on Digital Rights and Principles, 26 January 2022, COM(2022) 27 final.

¹¹⁹ Ch. I, *European Declaration on Digital Rights and Principles for the Digital Decade*, cit.

¹²⁰ The *Declaration* seems to accentuate the polymorphism character of administrative citizenship, cf. E.N. FRAGALE, *La cittadinanza amministrativa al tempo della digitalizzazione*, cit., 487 ff. See also L. PARONA, "Government by Algorithm": un contributo allo studio del ricorso all'intelligenza artificiale nell'esercizio di funzioni amministrative, in *Giorn. dir. amm.*, no. 1/2021, 10 ff.; O. POLLICINO, *Costituzionalismo, privacy e neurodiritti*, in *Medialaws*, no. 1/2021, 3 ff. It should be noted that in Chap. III of the *Declaration*, points no. 8 and 9, letters a), b), c), d), e), and f) mention is made of the Union's commitment to ensure the use of Artificial Intelligence mechanisms in compliance with fundamental rights, transparency and non-discrimination, basing algorithmic systems on 'appropriate data sets to avoid discrimination and allow for human oversight of all outcomes that affect the security and fundamental rights of individuals'. See C. CASONATO, B. MARCHETTI, *First observations on the eu commission's proposal for a regulation on artificial intelligence*, in *BioLaw Journal*, no. 3/2021, 415 ff., on Proposal for a Regulation of the European Parliament and of the Council laying down harmonised rules on artificial intelligence (Artificial Intelligence Act) and amending certain Union legislative acts, 21 April 2021, COM(2021) 206 final. See: F. DONATI, *Diritti fondamentali e algoritmi nella Proposta di Regolamento sull'intelligenza artificiale*, in A. PAJNO, F. DONATI, A. PERRUCCI (eds.), *Intelligenza artificiale e diritto: una rivoluzione?*, vol. I, cit.; B. MARCHETTI, L. PARONA, *La regolazione dell'intelligenza artificiale: Stati Uniti e Unione europea alla ricerca di un possibile equilibrio*, in *DPCE online*, no. 1/2022, 237 ff.

This participatory approach ensures that the smart city is built by involving citizens and stakeholders in every way possible.¹²¹

Moving from a government-centred approach, where the administration was placed at the centre, to a user/citizen-centred, as well as citizen-driven/user-voiced system, aims at an efficient administration, emphasising the dynamics of the administration-user relationship, which, however, requires digital education on both sides.¹²²

5. CONCLUDING REMARKS

The evolution of the smart city and digital land-use management has led to the elaboration of strategic urban planning phases for the implementation of strategic smart

¹²¹ D. DONATI, *Il ruolo delle Regioni nell'attuazione della sussidiarietà orizzontale: fasi, interpretazioni e problemi*, in *Ist. del federalismo*, no. 1/2021, 215 ff., B. MARCHETTI, *La garanzia dello "human in the loop" alla prova della decisione amministrativa algoritmica*, in *BioLaw Journal*, no. 2/2021, 367 ff. F. GASPARI, *Città intelligenti e intervento pubblico*, in *Il diritto dell'economia*, no. 1/2019, 83, recalling E. CHITI, *La rigenerazione di spazi e beni pubblici: una nuova funzione amministrativa?*, in F. DI LASCIO, F. GIGLIONI, *La rigenerazione di beni e spazi urbani. Contributo al diritto delle città*, Mulino, Bologna, 2017, 39. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *EU Action Plan for eGovernment 2016-2020 Accelerating the Digital Transformation of Public Administration*, Brussels, 19 April 2016, No. 179 final; but also Malmö Declaration 2009; *Tallinn Declaration on eGovernment at the ministerial meeting during Estonian Presidency of the Council of the EU on 6 October 2017*, 2017, *Berlin Declaration on Digital Society and Value-Based Digital Governance*, 8 December 2020.

¹²² M. CAPORALE, *Dalla smart citizenship alla cittadinanza digitale*, in R. CAVALLO PERIN (ed.), *L'amministrazione pubblica con i big data: da Torino un dibattito sull'intelligenza artificiale*, Turin, Quaderni del Dipartimento di Giurisprudenza dell'Università di Torino, 2021, 262 ff.

goals. This is sustainable, also financially¹²³, investing in the execution phase of plans and works, also through the use of innovative contractual tools.¹²⁴

As an example, the technical tool of digital modelling, known as *Building Information Modelling (BIM)*, could develop a model of cooperation between economic operators and public administrations to ensure efficiency of public works and to prevent maladministration by making all activities transparent and traceable.¹²⁵

¹²³ Cons. Stato, sez. IV, 27 March 2002, no. 1716, which affirmed how smaller urban realities can opt for the realisation of smart towns, indicating by this term the objectives of inclusion and increase in the quality of life through the use of digital technology for the enhancement of the historical-artistic and cultural heritage, urban furniture, green areas, sustainable mobility or public transport. C. IAIONE, 'Sharing economy' and innovation law. *The case of urban mobility*, in *Munus*, no. 1/2019, 187 ff.

¹²⁴ G.M. RACCA, *La digitalizzazione necessaria dei contratti pubblici: per un Amazon pubblica*, in *DPCE online*, 45, no. 4, 2021, 4669 ss.; G.M. RACCA, *La digitalizzazione dei contratti pubblici: adeguatezza delle pubbliche amministrazioni e qualificazione delle imprese*, in R. CAVALLO PERIN, D.U. GALETTA (eds.), *Il diritto dell'amministrazione pubblica digitale*, cit., 321 ff. CF Communication COM(2017) 572 final of 3 October 2017 to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Effective public procurement in Europe and for Europe*, 3; G. M. RACCA, S. PONZIO, *La scelta del contraente come funzione pubblica: in modelli organizzativi per l'aggregazione dei contratti pubblici*, in *Dir. Amm.*, no. 1/2019, 33 ff. See also, recently, G. GRECO, *Poteri amministrativi ed esecuzione del contratto (tra diritto nazionale e diritto dell'Unione europea)*, in *Riv. trim. dir. pub. com.*, no. 1/2022, 1 ff.

¹²⁵ G.M. RACCA, *La modellazione digitale per l'integrità, l'efficienza e l'innovazione nei contratti pubblici*, in *Ist. del federalismo*, no. 3/2019, 739 ff.; G.M. DI GIUDA, G. M. RACCA, *From Works Contracts to Collaborative Contracts: The Challenges of Building Information Modeling (BIM) in public procurement*, in G. M. RACCA, C. R. YUKINS (eds.), *Joint Public Procurement and Innovation: Lessons Across Borders*, Brussels, Bruylant, 2019, 223 ff. See also B.N. ROMANO, *Il BIM come strumento di semplificazione ed efficienza nell'e-procurement*, in *Amministrativ@mente*, no. 1/2023, 105 ff. Cfr. L. LORENZONI, *The risk of corruption in urban planning*, in *Ius Publicum Network Review*, n. 1/2019.

Basically, digital modelling creates virtual models of the building to be constructed or maintained with precision and geometric detail¹²⁶ and could undergo a further digital evolution when combined with property geolocation tools.

Digital city models can be envisaged, with varying degrees of detail, to guide urban areas towards reuse, with incentive mechanisms for private actors, by monitoring land and possible land uses, taking into account the climate emergency and reducing the waste of natural resources, and by cross-referencing data from different sectors.

The development of digital modelling is also the core of initiatives to implement the introduction of the so-called digital twin¹²⁷. It creates a virtual copy of a product, a process or an entire physical system, being able to predict the medium- and long-term outlook on the basis of data analysis. For example, in the case of the manufacturing industry the digital twins are already widespread and they are able to predict a break down, enabling productivity to be increased through predictive maintenance of mechanisms.¹²⁸

¹²⁶ C.M. EASTMAN, R. SACKS, *Relative Productivity in the AEC Industries in the United States for On-Site and Off-Site Activities*, in *J. Constr. Eng. Manag.*, No. 134/2008, 517-526.

¹²⁷ EU Commission, *A European Data Strategy*, cit., 3 ff.

¹²⁸ EU Commission, *Digital Compass 2030: The European Model for the Digital Decade*, cit.

Establishing developments in the sharing and coordination of data in the various strategic spaces¹²⁹, the EU launched the Destination Earth (DestinE) initiative, which is aimed at developing a highly accurate digital model of the Earth.¹³⁰

The terrestrial digital twin will support sustainable development for a better environment, as outlined in the Green Deal, by providing a platform for digital modelling to visualise, monitor and predict human and natural activities on the planet.¹³¹

Similarly, it is possible to construct digital twins that reproduce not only the territory in general but also the individual territorial parcels, for the construction of a cognitive database of the territory for the public interest, through the coordination of geographical and territorial information and the updating of urban planning tools and the integration in the national and local *Geoportali*.¹³²

Digital modelling infrastructures for the organisation of cities can therefore be placed alongside digital 'meta-infrastructures' to effectively meet the needs of the smart city in terms of good performance and increasingly analytical and predictive good administration.

¹²⁹ EU Commission, *A European Data Strategy*, cit., 30.

¹³⁰ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Shaping Europe's Digital Future*, 19 February 2020, COM(2020) 67 final.

¹³¹ EU Commission, *The European Green Deal*, cit.

¹³² By way of example, in the health sector, see G. SDANGANELLI, *La gestione del rischio clinico e delle commesse responsabilità per l'effettività del diritto alla salute*, in *federalismi.it*, no. 5/2022, 214 ff.; and in that of public contracts: G.M. RACCA, *La digitalizzazione necessaria dei contratti pubblici: per un Amazon pubblica*, in *DPCE online*, no. 4/2021, 4669 ff.

The complexity of identifying the functions that characterise digital spatial governance in this case is due to a number of factors. These range from the division of competences at European and national level, to social experiences that have had an impact on participation in the administrative management of cities, to the invalidity of outdated planning tools due to the lack of integration of information, which causes their incompleteness.¹³³

The emerging perspective is a smart planning for a city governed by the principle of integration. This will certainly involve the development of urban planning tools to support the coherence of the territorial governance system and the cognitive activity of the administration.¹³⁴

Generating and developing a digital approach that improves public services and interaction with users by adapting them to criteria of appropriateness is no longer the only challenge of the smart city. This must build a kind of additional and new public asset, an intangible public infrastructure, linking together administrations, people and things, networks and a multitude of networks, and integrating geographic, territorial and environmental information.¹³⁵

¹³³ F. GIGLIONI, *The Creative Right of Cities*, www.cittacreative.eu.

¹³⁴ Recently, F. COSTANTINO, *Brevi note su intelligenza artificiale e smart cities*, in A. PAJNO, F. DONATI, A. PERRUCCI (eds.), *Intelligenza artificiale e diritto: una rivoluzione?*, vol II, cit. See also: M.T.P. CAPUTI JAMBRENGHI, *Risparmio del suolo e turismo naturalistico spunti di riflessione sullo sviluppo sostenibile nella perequazione urbanistica*, in *Ambiente e Diritto*, n. 1/2021, 1 ss.; P. CHIRULLI, *Urbanistica e interessi differenziati: dalle tutele parallele alla pianificazione integrata*, in *Dir. Amm.*, n. 1/2015, 50 ss.

¹³⁵ C. IAIONE, S. RANCHORDAS, *Smart Public Law. Automation And Decentralisation Of Public Power: Smart Contracts And The Blockchain As Stepping Stones For A Digital And Polycentric Good Administration?*, in *Italian Journal of Public Law*, no. 2/2021, 416-446. See also, E. CREMONA, A. SIMONCINI, *La AI fra pubblico e privato*, in *DPCE online*, no. 1/2022, 253 ss.; R. CAVALLO PERIN, D. U. GALETTA (ed.), *Il diritto dell'amministrazione pubblica*

In this perspective, it is necessary to develop an integrated land management system in which a common knowledge base can be identified, standardised by the commitment to interoperability of procedures and uniformity of administrative information systems, in the division of responsibilities between the EU, the State, the Regions and local authorities in the field of urban planning and digital land-use management.¹³⁶

Abstract. *The article analyses the evolution of digital urban planning and land-use management in Italy. European rules on the implementation of common data spaces for the Green Deal require Member States to share geographical and spatial data across national borders. According to the European and national regulations, ICT tools must be interoperable to guarantee accessibility and data-quality pursuing the right to good administration (art. 41 ECHR). This can be achieved starting from the implementation of the INSPIRE Directive (2007/02/EC), which requires Member States to create the National Geoportal as an API interface for geographic and territorial data to be made available to all levels of government. The article will focus on the creation of a common knowledge base adequate for land-use management in Italy, thus ensuring the validity of urban planning tools to pursue an effective sustainable development. National provisions on land-use management require public administrations to implement urban regeneration actions and to limit soil consumption. In this field, temporary uses might permit to reuse abandoned areas, also with the collaboration of citizens through the implementation of ICT tools.*

digitale, M. PALMA, *Blockcerts in the prism of public certainty*, in *Ius Publicum Network Review*, no. 1/2022; I. GRECO, G. CRESTA, *A Smart Planning for Smart City: The Concept of Smart City as an Opportunity to Re-think the Planning Models of the Contemporary City*, in O. GERVASI et al, *ICCSA 2015, Part II, LNCS 9156*, Springer, 2015, 563 ff. The reference is also to the 'Multidimensional city', L. BARTOLINI, W. SALET, *Planning concept for Cities in Transition: Regionalization of Urbanity in Amsterdam Structure Plan*, in *Planning Theory and Practice*, vol. 4, no. 2/2003, 131 ff.

¹³⁶ A further example of the attempt to guide perspectives on the management of urban spaces is the European 'LUIISA - territorial modelling platform' within the *Urban Data Platform*, which is based on the concept of land function for cross-sectoral integration and the representation of complex system dynamics.