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The Smart Society Between Semantic Indefiniteness and Efficientistic Reductionism

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Abstract. The article aims at the construction of an annotated bibliography on the smart society. the impression, and therein lies the cognitive hypothesis, is that the bibliography on the subject is technical and sectoral. the consequences of this technicality and the semantic difficulty that smartness brings, seen to result in a strong impoverishment of the social.

Keywords: smart society, smartness, efficientistic reductionism, semantic indefiniteness.

Riassunto. L'articolo mira alla costruzione di una bibliografia ragionata sulla società intelligente. l'impressione, e qui sta l'ipotesi conoscitiva, è che la bibliografia sull'argomento sia tecnica e settoriale. le conseguenze di questo tecnicismo e la difficoltà semantica che l'intelligenza porta con sé sembrano tradursi in un forte impoverimento del sociale.

Parole chiave: smart society, smartness, riduzionismo efficientistico, indefinitezza semantica.

1. INTRODUCTION

In the new social transformations, what are recorded amidst complex social systems (and therefore that are not linear, unpredictable) comes fully under the scope of the smart society phenomenon concept. Smart society has today become synonymous of the perfect society, because it ensures the quality of life of its citizens, as it is technological, sustainable, efficient and connected. What society, at these conditions, would not want to be smart? And if the terms smart, as it often is, is understood as synonymous of "intelligent", then what society would want to be stupid?

On a global scale, smartness is emerging as the new horizon of contemporary society, to which "meanings and practices" must be adapted. The potential for developing new smart technologies, artificial intelligence and the use of big data, all comes under this scope. On this premise, strictly linked to complex systems, can the smart society truly represent the perfect society everyone describes?

If we look at the evidence, however, it could be seen to be as ideally perfect as it is imperfect in practice, as desirable in ideal terms as it is faulty in real terms. What would appear to be lacking in the smart society is precisely its social essence.

The cognitive objective of this article will be to understand exactly where the social dimension is in connection with the manner in which smartness is conceived. That is, to understand what society does within the smart society. The impression, and here lies the research hypothesis, is that there is a correlation, which negatively affects the social side, between the lexical indefiniteness that characterises the term "smart" and the technicality that characterises smartness. Namely, as one grows, the other does too. The greater the lexical confusion, the greater the technical reflection of smartness. As we will see over the next few paragraphs, this correlation leads to an impoverishing of the social aspect, precisely the social aspect that should instead enrich the smartness. Within this contribution, the choice has therefore been made to cover, amongst the numerous critical issues involved in the smart society and smartness in general, only lexical indefiniteness and technicality as causes of social impoverishment, well aware that they are far from being the only ones.

The contribution will be structured into three parts. A first, introductory part, will seek to offer a critical examination of the reasoning on smartness, highlighting how the great technicality that has embraced all its aspects since its birth, is also the greatest cause of the social impoverishment that characterises it today. A second part will present a reasoned bibliography that will aim to empirically show how what are most discussed in "smart" are the more strictly technical and sectoral dimensions. And, finally, a closing part commenting on the results and setting forth conclusions.

2. PART ONE

Talking about smart society today immediately raises two types of problems:

a) the semantic indefiniteness and
b) the technicality.

Semantic indefiniteness embraces all the literature that stresses how much the term "smart" – used directly in English and which tends to be construed as "intelligent" but which does not successfully embody all its facets – is by no means an easily-interpreted word, as it depends very much on the object of the smartness. Effectively, the term can only be translated and interpreted correctly by analysing the collocation (noun plus adjective) of this "smart". In this sense, therefore, it should come as no surprise that the concept of "smartness" varies from article to article. As stressed by the controversial title of his intervention *Will the real smart city please stand up* Hollands (2008) first criticises the rhetoric and emphatic aspects that accompany the topic of smartness, claiming that the weakness of the definition framework is one of the most problematic, riskiest aspects. Often, societies self-define themselves as "smart", yet without clarifying or specifying exactly what that means. Using the same lemma and the same idea of smart society, very often allusions are made to very different realities. The concept of smart society would therefore appear to have suffered the difficulty of not having a holistic definition assigned it, which could offer a clear, unambiguous definition in all fields attributed it. Only one content item remains virtually intact and clear in the various contexts in which smartness is used: the idea of a great technicality.

The lexical indefiniteness, that is, the lack of a holistic definition of what a smart society truly is, as will be shown by the research described in the next few paragraphs, encourages an attitude of technicality and dangerous sectorisation, if we consider what they leave out in the concrete implementation of smartness applied to society.

Clearly, it is nothing new, the legend of the technical has always existed and is consistent with the whole route taken by modernity. Today, however, in the "always on" era, in the era where smart technologies are part of our everyday lives, it has extreme consequences. The importance of the technical also grows in connection with the weakening recorded on other fronts, like in politics or cultural, social and economic transformations (e.g. social showcase, the era of the society of knowledge, the era of big data, digital capitalism and surveillance).

Both the semantic indefiniteness on the one hand and the sectorial nature and technicality on the other, would appear to make the smart society a far cry from the ideal of the perfect society considered by the collective imagination, as also conveyed by literature. In particular, by fully analysing the individual dimensions of smartness, all the community and inclusive dimensions would appear to be left out, which, if truth be told, are what actually make society; instead, efficientistic reductionism would appear to prevail, precisely as a result of a technical and sectoral approach. In this sense, the smart society is imperfect because it replaces the quality of life of its citizens with blind efficiency, guilty of a certain, strong *hybris*, which sees efficiency as the sole end, leaving imperfection behind.

The first form of this failing in social is already evident in the hierarchy of the elements that make up

smartness and which sees a predominance of the technical dimension over the other dimensions. Although the aim, as mentioned, is to improve the quality of life of the collectivity, social is precisely excluded from this mechanism. Now, following on from this reasoning, impoverishment occurs when what is useful to society is replaced by what is useful for society, recalling the famous Pareto distinction (1965). The material (and immaterial) well-being of the society is prioritised, rather than its connection and social cohesion.

Social thus divides and it is precisely in this division that its impoverishment lies:

a) on the one hand, it becomes what is useful and convenient in a vision that sees efficiency considered in economistic terms only
b) on the other, it is mere connection, which characterises the smart society, but which is not integration.

Two elements that are very much linked given that as what is useful, convenient and functional increases, at the same rate, integration decreases.

3. PART TWO

The second part of this article attempts to examine how much studies on smart society return a comprehensive image of society. The bibliography on the topic is extremely technical and sectoral. A technical and sectoral nature that is somewhat difficult to combine with sociological reasoning and a holistic approach able to consider the various specifications of smartness in their inter-dependency and a capacity to "make society".

Thus, in this paragraph, a study has been pursued inspired by the research of Cocchia (2014) *Smart and Digital City: A Systematic Literature Review*, which creates a reasoned bibliography on the topic of smartness and in particular on the specifications offered by the topic of smartness.

To ensure rigour in documenting the literature search process, five steps were followed (Vom Brocke *et al.* 2009):

a) Definition of the research model
b) Conceptualisation of the subject
c) Literature search
d) Analysis and summary of the literature
e) Comment on results

3.1. Definition of review scope

In order to define the scope of this literature review, the author refers to an established taxonomy presented by Cooper (1988), including six characteristics for literature review:

a. The 'focus' represents the central area of interest to the reviewer. This means that this area includes the results of the research, the research methods and the theories. This bibliographic research focus regards all types of articles, from theoretical to those centred around application. The research also included conference proceedings but excluded degree theses.
b. The 'goal' is related to what the author hopes the review will fulfil, i.e. the review scope. In this sense, there may be several goals for this review: integrative (aiming to clarify contradictory ideas) or critical. But it can also regard central matters (i.e. what has been studied in the past or future matters). The aim of this review is without doubt critical, summarising the literature present and investigating the incidence of smart literature on the academic dictate.
c. The 'organisation' represents how literature will be organised. The literature review could be organised by: chronological, conceptual (i.e. grouping the same ideas together) or methodological order (i.e. grouping together the same working methods). This literature is presented in chronological order for each of the axes presented for smartness.
d. The 'perspective' represents the point of view of the reviewer in discussing the literature. The reviewer could conduct the study with: a neutral position (interpreting the impartial role of an honest "judge") or a biased position (interpreting the role of "lawyer"). The author believes it useful to adopt an essentially neutral literary research perspective as there is no interest in promoting a specific policy or position on the matter.
e. The 'audience' concerns the groups of people (such as researchers, practitioners, policy makers, general public, etc.) whom the review is addressed. The audience for the literature review is made up of scholars.
f. 'Coverage' regards how the reviewer searches the literature and how they make decisions about the suitability and quality of documents. Coverage may be: complete, complete with selective citation, representative, central or hinged. Reasonably representative coverage has been chosen. This reasonableness means that, through the Publish or Perish program, the research highlights all articles derived from the input.

3.2. Conceptualisation of the subject

The conceptualisation of the subject of research is the most important part of the entire research. It is,

in fact, around the definition of the concept that the research will be developed, which will lay solid foundations for the start.

So to answer the question what will be researched, reference was made to the dimensions of smartness. To understand the incidence in the academic world of the smart context, in fact, the categories used previously to define what is meant by "smart city" were used.

Reference is specifically made to Giffinger's six axes (2008), which are: people, economy, living, mobility, governance and environment.

Although it may seem odd to use smart city categories to speak of smart society, the oddity ceases if we consider that the city is the material result of society.

Simmel himself, as seen, told us that analysing the city means querying society's changes.

In addition to this, in my opinion, the categories used by Rudolf Giffinger and his school for the smart city, instead return an exhaustive picture of society.

They are, in fact, six specific factors, but which offer a fairly precise range of the tiers making up society.

Finally, in order to be as precise as possible, the collocation[1] "smart society" has been added to the axes.

The final, comparative research on the main subject of this work – the smart society – guarantees the benchmark necessary to provide an idea of how this area of new perspectives of sociology has been given so little consideration – compared with the more technical categories – in the last ten years.

3.3. Bibliographic research

The literature research phase essentially comprises the technical aspects, i.e. the indication of the database used, the keywords entered, the years of research and the type of assessment applied to sources.

The research was carried out using the program Publish or Perish for devices with the iOS operating system. In order to start the research, the program calls for the selection of the on-line database to be used. The choice was made to use Google Scholar because it includes the widest field of publications and a huge range of databases for all academic sectors.

Thereafter, the keywords and search criteria were chosen to extract a representative subset of the selected database. In the case in point, the system was asked to look for the words:

- "smart people"
- "smart economy"
- "smart living"
- "smart mobility"
- "smart governance"
- "smart environment"
- and finally, for a final statistical comparison, also "smart society".

The collocation is between double quotation marks because in the input of the search program: open quotation marks; text; close quotation marks; this sequence prevents searching for collocations that are not in the order: adjective "smart" + noun.

The database was asked to search for these collocations only in the document title, so as to extract a subset that would be representative of the database chosen. The search carried out is not case sensitive, hence it was irrelevant whether upper or lower case letters were used in the title: "smart people" is the same as "Smart People", which is the same as "SMART PEOPLE". Both patents and citations were also excluded from the search.

In thus doing, the search results comprised 2736 articles as follows:

- "smart people" 206 articles
- "smart economy" 117 articles
- "smart living" 320 articles
- "smart mobility" 793 articles
- "smart governance" 384 articles
- "smart environment" 769 articles
- "smart society" 147 articles

In the case in point, PoP (Publish or Perish) was asked to place the results in chronological order from 1981 to 2020. The choice was made to start the search in 1981, because, as already specified, the presence of the word "smart" in a scientific article dates back to that year (Doran 1986). This large time frame was necessary in order to return an overview that would effectively be representative of reality.

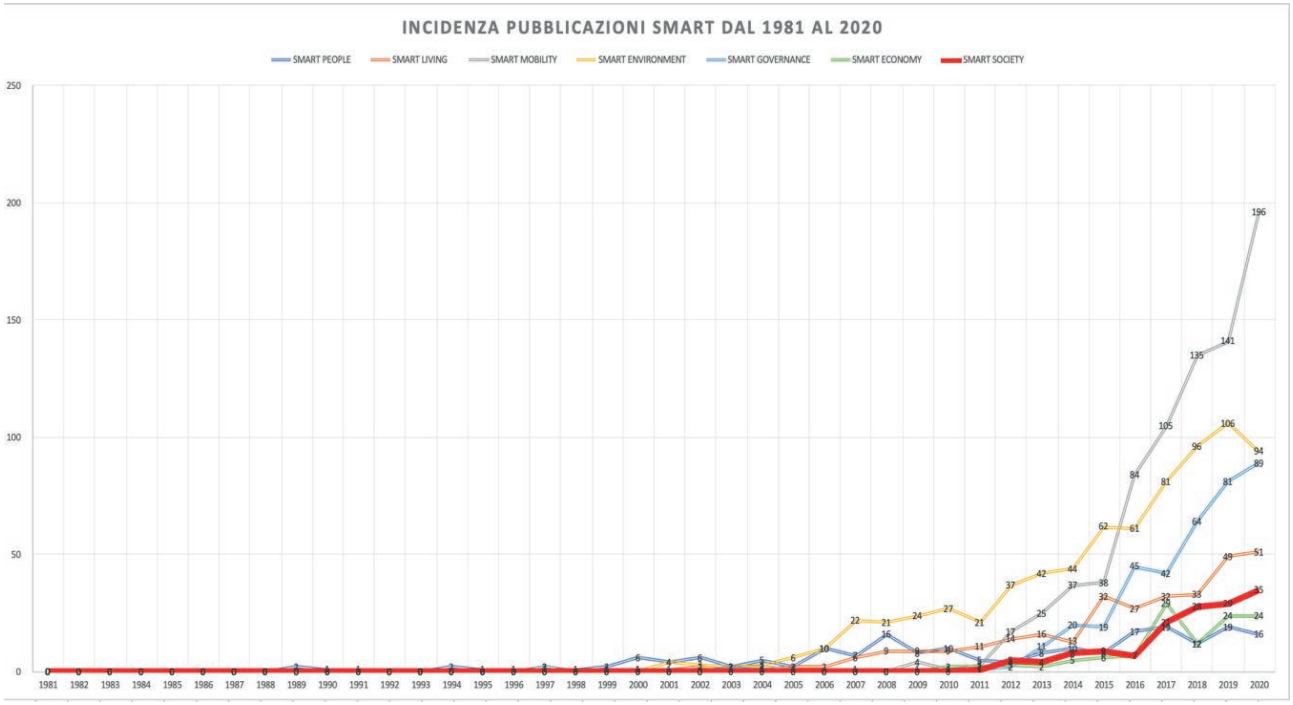
The choice was instead made to end the search in 2020, because the works for locating the material were carried out throughout 2021, with consequent data processing in 2022. This bracket allows for a reasonable representative subset that does not include works in progress.

Any doubles, power points, theses published by universities and products lacking a year of publication were then excluded from the search.

3.4. Analysis and summary of the literature

«After having collected together sufficient literature on a subject, it must be analysed and summarised»

[1] According to the Oxford Dictionary, "collocation" is a word or phrase that is often used with another word or phrase, in a way that sounds correct to people who have spoken the language all their lives, but might not be expected from the meaning.



Graph 1. *Source:* author's elaboration.

(Cocchia 2014). Therefore, the purpose of this phase is to organise the documents saved to systematically analyse the literature collected. To achieve this aim, the 2736 documents were organised to investigate over a time-frame analysis and explore the evolution of research on smartness in the last 39 years. To achieve this goal, the documents archived were organised by year of publication in order to obtain a calculation that would be as precise as possible over the year. The result of this analysis shows the document trends in the period 1981-2020, labelled according to the categories specified. The choice was made to represent the trend with a graph created using Microsoft Excel.

The general trend of publications was, therefore, made possible thanks to the comparison of the individual trends of the pillars specified below, and which followed the same route of analysis as the general graph.

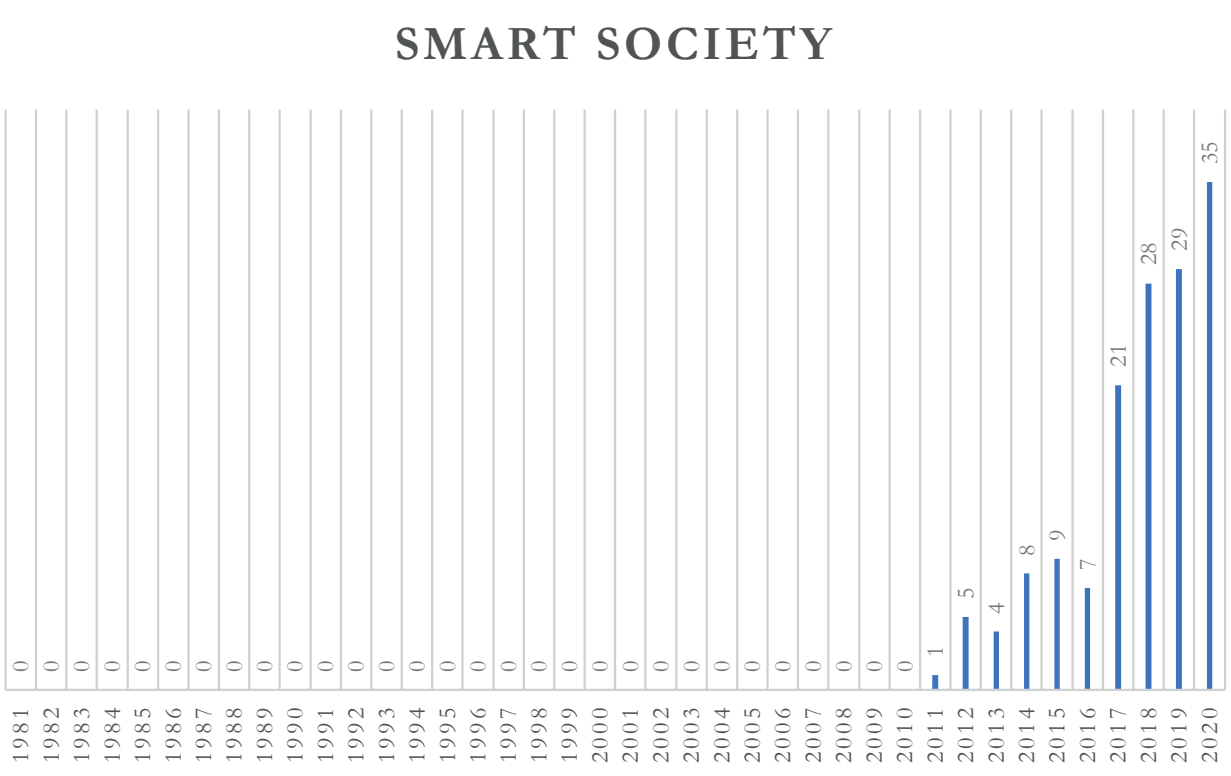
3.5. Comment on results

In the first two parts of this work, an attempt has been made, through analysing literature on the subject, to define the smart society, but, in a parallel fashion, to highlight how this definition is flawed by the confusion surrounding the adjective "smart".

This confusion was initially attributed to the great technicality and specialisation of smart areas. The graph would appear to confirm this initial hypothesis. The trend of the smart society shows how this has been discussed significantly less than other categories.

In observing the specifications on a year-by-year basis, there are no scientific articles that include "smart society" in their title until 2010. In 2011, just one article, in 2012 five, in 2013 four, in 2014 eight, in 2015 nine and in 2016 seven. Only starting 2017 does the presence of articles covering the subject increase, respectively numbering 21 articles in 2017, 28 in 2018, 29 in 2019 and 35 in 2020, for a total of 147 articles in 39 years. Or better, 149 articles in 10 years, given the absence of any before 2011, which suggests hope in analysing the growth trend seen in recent years.

If this data is analysed individually, it could be claimed, with the help of a mathematical calculation, that "smart society" only started being discussed – very little – in 2011, or rather, reasoning on smart society only began in 2011. Except that the first article which contains the collocation "smart society" in its title is a highly technical article: Hong (2011). Smart Society. Smart traffic forecasting in society. *The Proceeding of the Korean Institute of Electromagnetic Engineering and Science*, 22, 2: 31-43. Therefore, the first article that dis-



Graph 2. *Source:* author's elaboration.

cusses smart society is a civil engineering article (at least going by the title).

It is important, however, in this case to note how the country of origin of this article is Korea, which, by no coincidence, began the construction of Songdo (Shwayri 2013) back in the 2000s.

If the first article did not suffice to provide an idea of just how technical reasoning on society is, we can move onto analysing the second article, published in 2012, entitled *Towards a Smart Society Through semantic Virtual-Object Enabled Real-Time Management Framework in the Social Internet of Things* (Shamszaman and Ali 2018). Although the word social can be misleading, the article abstract reads «The admiration of social networks (SNs) and the advent of the Internet of Things (IoT) direct to a new research paradigm called Social IoT (SIoT), where real-world physical objects can form their own SN like the human SN». As yet, there is no discussion of the society as a whole, but in truth instead of technologies that can create the smart society.

The same applies to the other articles published in 2012, which cover "Computer security", "Information Security Policy", "Low carbon society" and, finally, "local development".

Therefore, analysing all 147 articles, only 17 articles cover sociological matters.

If we compare this with the rest of the data supplied by the research, we can see that the number of articles written about smart society only exceeds the number of articles written about the smart economy, but is far fewer than all the other categories analysed.

In general, however, from the analysis of the literature on the topic, a constant increase is recorded in smart-themed articles, except for a slight downturn in 2011.

In 2020 alone, 505 articles were published, out of a total of 2736, compared with 44 published in 2011, the year in which the first article appeared on smart society.

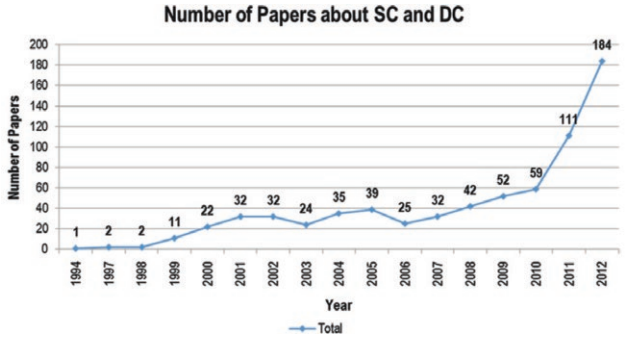
It is by no coincidence that starting 2011, the growth of economic papers starts to be significant. Effectively, in analysing the article that inspired this research (Cocchia 2014), it can be seen that 2011 is the year in which, after moderate progress, articles on the smart city and digital city grew considerably.

It is therefore not difficult to hypothesise that the two events are related, and that both are the consequence of a social political occurrence.

Table 1.

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	TOTALE
SMART PEOPLE	0	0	0	0	0	0	0	0	2	1	1	0	0	2	1	1	1	1	2	6	4	6	2	5	2	10	7	16	8	10	5	4	8	10	8	17	19	12	19	16	206
SMART LIVING	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	6	9	9	9	11	14	16	13	32	27	32	33	49	51		320
SMART MOBILITY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	2	1	0	0	0	4	1	3	17	25	37	38	84	105	135	141	196	793
SMART ENVIRONMENT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	4	3	2	3	6	10	22	21	24	27	21	37	42	44	62	61	81	96	106	94	769
SMART GOVERNANCE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	1	0	0	2	0	1	0	1	0	1	1	1	2	11	20	19	45	42	64	81	89	384
SMART ECONOMY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	2	3	2	5	6	7	29	12	24	24	117
SMART SOCIETY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	4	8	9	7	21	28	29	35	147
TOTALE	0	0	0	0	0	0	0	0	2	1	1	0	0	2	1	1	5	1	5	8	9	11	9	12	12	22	36	46	46	50	44	82	108	137	174	248	329	380	449	505	2736

Source: author's elaboration.



Graph 3. *Source*: Cocchia (2014).

In 2010, in fact, the European Union launched the Europe 2020 Strategy, which required all 27 countries to ensure «smart growth investing in education, research and innovation areas; sustainable growth investing in technologies and resources low-carbon economy; inclusive growth giving a strong emphasis on job creation and poverty reduction»[2]. Namely, the Europe 2020 Strategy concentrated on five areas: employment, research and development, climate change and energy sustainability, education, and the fight against poverty and social exclusion. To attempt to achieve these objectives, therefore, the European Member States sought to pursue technological, sustainable and smart initiatives. This acceleration would appear to have consequently increased academic studies in the smart area.

4. PART THREE

The latter part of this article is dedicated to drawing conclusions, analysing the results of the bibliographic research.

As can be seen, despite the positive data seen in 2011 and the continuous growth of the smart sector, the numbers expressed by the tables reveal just how technical and sectoral the discussion of "smart" is. Amongst others, we need merely observe the only 206 articles about smart people, the base unit of the smart society, compared with 793 on smart mobility.

So what exactly does this technicality revealed by the reasoned bibliography of the second part mean? Which repercussions has this lack of a holistic definition in social terms?

With the excuse of making the social context smart and, obviously, of improving the quality of life of citizens, the institutions use the tools made available to them by the digital giants (Zuboff 2019) and vice versa, starting a process where the usefulness of society is excluded, where relationships and ties are excluded, namely where that connection – which makes smartness – is missing from all subsystems. Thus a reasoning takes control of the smart city, all focussed on efficiency and governed by economic processes (Söderström, Paasche and Klauser 2014: 309; Bria and Morozov 2018).

More specifically, when observing smart society, what emerges is the possibility of reducing the obstacles that generate a sort of friction towards the use of services. The beauty of imperfection (Nuvolati 2020: 65), error, is therefore sacrificed in the name of a standardisation in the use of smart devices, which are based on generic controls and procedures, falsely democratic insofar as not applicable:

a) to all; in this sense, reference is made to the digital divide very much present in this type of society (Bentivegna 2009, Eco 1965, Iannone 2007). Without doubt, the message that can be conveyed is always the same – whether solvable for some and insolvable for others – i.e. new smart potential is always and inevitably synonymous of new asymmetries.
b) by all, i.e. only applicable by those with suitable competences and above all who are able to keep step with innovation through tiring, continuous updates. The monitors and displays installed in smart technologies become mirrors, reflecting the face of the social player governing them (or at least believing it does), making it aware that if the service should not be successful, they will be responsible for this (Mill-

[2] Europe 2020. A European strategy for smart, sustainable and inclusive growth https://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%20%20007%20-%20Europe%202020%20-%20EN%20version.pdf

er and Sanadeera 2017). And this suggests a certain, strong level of experience opacity.

While on the one hand, the design of the smart city is developed, made up of all those aspects seen previously (economy, people, living, environment, governance, mobility), on the other, the balance between I and we no longer becomes, as critically stated in the first modernity, the product of the calculation but merely this I/we balance is no longer themed, it is assumed as the logical consequence of smart connection.

This is a vision that crushes on the *hic et nunc*, on the present, where «contemporaneity replaces continuity» (Mongardini 1997) and where, inevitably, it is economic interests that prevail. Far from looking like perfection, the smart society is instead imperfect, because it goes from a future-oriented vision to one in which the future is merely an extended present, standardised and economically directed.

On the one hand, therefore, it is clear that we are facing an efficientistic reductionism that devours the social, but which here makes a certain idea of social come to be, which is very poor compared with its potential, all focussed on the usefulness and convenience although all deriving from that technicality discussed. Cue the major difficulties encountered in coining a holistic definition of smart society.

To conclude, it can therefore be said that the technicality, in the form of efficientistic reductionism and lexical indefiniteness, understood as the lack of a holistic definition of smart society, are causes of social impoverishment. A social policy that on the one hand blindly follows usefulness and economic efficiency, and on the other instead pursues a connection to its own end, which does not give rise to integration. And it is precisely this latter aspect that is perhaps the most serious. It is as serious as it is paradoxical: the smart society, intrinsically connected, is imperfect in what makes society, namely integration.

Hence the question with which I would like to conclude: what makes society perfect? But above all, perhaps, we should ask ourselves, in light of these findings, what makes society in a smart society?

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