Policy Briefing n. 6

DATA DRIVEN INNOVATION: LEVERAGING THE CREATIVE AND SOCIAL DIMENSIONS

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This document elaborates on a policy concept – Data driven Innovation – recently introduced by the OECD to depict the progress made by the data driven economy and the challenges this poses to national legislation and regulation. We argue that although left implicit, the creative and social dimensions are both present and very relevant to a full development of that concept to create opportunities for growth and jobs and we bring a number of concrete examples in support. While data generation as a new form of RDI (Research, Development and Innovation) or the acknowledgement of a social interface of data may appear controversial to some extent, we suggest that these aspects should become more central in future policy making, not only in a defensive manner, e.g. to protect IPR and privacy, but also proactively and to give meaning and flavour to existing and emerging data driven initiatives at local level.

INTRODUCTION

With the proliferation of big and linked data sources and the literally exponential growth of computing and data management capacities allowed by technological progress, the term data driven economy is no longer an oxymoron. Once upon a time – it seems quite long ago, but in fact is just as early as the beginning of the first Obama Presidency, in 2008 – the logic followed by data owners, mostly governments around the world, was very similar to the "build it and they will come" tenet of the turn-of-the-century's platform developers. "Open it and it will be used" was the not-too-implicit slogan that has justified building a plethora of open data portals, now more than 2600 worldwide according to OpenDataSoft[1] , hoping to create a market that was not there before, the market of data driven applications and services.

Unfortunately, and still today, no immediate connection between the publication of a dataset and its economic valorisation can be established. The growth and jobs associated to the purposeful creation of open data portals have not materialized.

The "Open it and it will be used" maxim does not work in practice – although it remains true, and increasingly so, that the use of data is becoming pervasive and supportive of an emerging sector of the "new economy". In the European Union alone, a recent (2016) study placed the number of companies that actively use data for their business in the range of 255.000, and the workers involved in various ways in data management in the range of 6,16 million. The value of the EU data driven economy was estimated to be about €300 billion and counting[2]. The figures for the MED area, referring to the year 2017, are reported in the table below.

Table 1. Data driven economy figures in the MED area (2017)

	In the EU MED area	In the remaining EU countries
Number of data workers[3]	1.971.743	4.690.000
Number of data suppliers[3]	60.250	216.200
Number of data users[3]	268.600	422.050
Number of data centres[4]	401	901
Number of cloud server farms[4]	78	156

Generally speaking, however, the datasets these companies and workers are seated on do not belong to the public domain. The open data movement and especially the impulse of open government advocates has certainly contributed to start the engine, but the fuel is not coming from public-sector open data, at least not to the same extent as it does from privately owned, sourced, and managed data.

1. Compare https://opendatainception.io/
2. Source: European Data Market Study, http://datalandscape.eu/
3. Only EU Member States. Source: http://datalandscape.eu/european-data-market-monitoring-tool-2018
4. Including IPA countries & Turkey. Source: http://www.datacentermap.com/

Indeed, some inspired observers have even started to reverse the angle of investigation, from asking how the private sector can create value from data held by governments, to highlighting how data held by the private sector can be conveniently used to address unsolved social issues of public interest[5]. In this scenario, an interesting point has been recently made by the OECD in their 2015 publication entitled "Data driven Innovation"[6].

Nowadays, a significant number of success stories exist around the world showing the benefits of data acquisition, processing and analytics for the global competitiveness of businesses and radical improvement in the quality of government services. This means that above and beyond its occupational and socio-economic effects, data adoption is a tremendous source of process innovation, which is largely untapped by the majority of private and public players.

The publication then suggests that OECD countries should act to facilitate seizing these benefits, e.g. by training more and better data scientists, reducing barriers to cross-border data flows, and encouraging investments in business processes that incorporate data analytics. At the same time, governments need to anticipate and address the disruptive effects of Data driven Innovation on competition (risk of abnormal market concentrations by crowding out the less innovative companies from traditional businesses), privacy and intellectual property rights (IPR) protection, transparency and accountability (in the case of fully automated decision making based on data analytics, both in the private and public sector) as well as tax base erosion (due to aggressive planning and profit shifting by data supported firms).

This Policy Brief aims to elaborate further on the concept of Data driven Innovation, particularly by narrowing the focus on its creative and social components. These are obviously familiar to most observers of the data driven economy, though often a bit overshadowed by technology related analyses and recommendations. Likewise, European and national policy makers are certainly aware of the social impacts of data handling – as the big shake given to all industries by the recent introduction of the EU GDPR is there to demonstrate; however, privacy protection looks at only one aspect, and in a defensive mode, while the whole concept of Data driven Creative and Social Innovation is actually multifaceted and deserves more exploration of its potential developments.

5. See the narratives in http://datalandscape.eu/sites/default/files/report/Story_1_New_format.pdf
6. http://www.oecd.org/sti/data-driven-innovation-9789264229358-en.htm

DATA GENERATION AS A NEW FORM OF RDI

It is too often neglected, but the OECD concept of Data driven Innovation helps us a lot rethink and realize that any data has not been there for very long time. Quite the contrary, most of the economic value resides in the creation from scratch and the continuous renewal of existing datasets, according to a process that has several points in common with RDI, the Research, Development and Innovation workflow. The following table, inspired by the OECD study, highlights the main touch points.

Table 2. Analogy between RDI and data generation

	RDI	Data generation
Intangible assets, resulting from the creative application of human knowledge and purposeful behavior	Yes	Yes
Can be patented	Yes	No
Subject to access restriction measures for legitimate reasons	Yes	Yes
Can give a competitive advantage to sole owner or exclusive user	Yes	Yes
Subject to spillover effects and positive externalities across the economy and society	Yes	Yes
Related investments are financed by the public hand when the market fails to incentivize them	Yes	No

In this perspective, the two main elements of distinction are that: a) data IPR is more difficult to protect legally than in the case of RDI results, and b) there is no explicit financial support to data generation by the private sector, despite the fact that in some cases at least, this might also bring some relevant value to the economy and society – therefore the public good. However, if one looks more closely into these two aspects, the inherent contradiction between data openness and economic value comes to the forefront.

As stated in the introduction, most exploitation opportunities reside in the private character of the data used, while on the other hand data publication through open portals has not led to the desired impacts in terms of growth and jobs. Even the not too recent emergence of citizen data and user generated data portals or geo referenced applications (such as MappiNa, historically born as a free and open source map of the City of Naples' points of interest[7]) has not been coupled with the establishment of new and financially secure business models.

This implies that the public hand will have to reconsider and partially adjust the direction taken by its financial support so far, away from the application level (production of tools and apps fuelled by data, especially open data) and back to the data generation level – not only by the public, but also private sector and especially by creative individuals. This would also contribute to solving one of the main problems of open government portals: to be economically viable and technically usable, data needs curation and continuous updating, while the quality and timeliness of the datasets stored in government portals are usually found lacking.

Thinking in terms of data generation as a creative endeavour and comparing it with RDI efforts can thus facilitate the required shift in policy makers' mindsets and lead to new approaches to the data driven economy. It is therefore appropriate that the Interreg MED programme 2014-2020 has put open and big data as a thematic priority alongside cultural and creative industries. A question remains of whether projects funded under this priority – one shown here below – will be able to demonstrate the link between creativity and data as well as explore its policy implications.

7. http://www.mappi-na.it/#/

THE SOCIAL INTERFACE OF DATA

The social dimension (or interface) of the process of data generation and use is the second key concept that we would like to explore in this Policy Brief. Sadly, the substance of this element is not always clearly perceived by technology experts. The term social interface is used in Computer Science to name the attribution of human-like aspects to a software agent (such as a recognizable gender or facial expressions) with the aim of increasing response rates from users during human-to-computer interaction[8]. Likewise, a popular marketing service bearing this name connects a shopping cart directly to the Facebook advertising platform to expedite ad creation and procure new and more tailored consumer experiences[9].

Instead, our use of the term is closer to the concept of social innovation, insofar as it refers to all those emergent communities – also from within the MED area – that broadly look at data as an opportunity for social inclusion and use the aggregating power of social communities to further extend the boundaries of Data driven Innovation. Examples include:

• data as an engine of **innovation literacy** strategies, providing a relevant framework for engaging citizens with easy-to-use tools (i.e. visualizing or converting proprietary data) to explore their own city in new ways. This is one of the commitments of Citilab, a centre for social and digital innovation located in Cornellà de Llobregat, Barcelona, aiming to exploit and spread the benefits of creative thinking, design and innovation emerging from digital culture;

• data as vehicle of **public service innovation**, through an extended concept of hackathon, no longer restricted to the participation of coders and domain experts but open to the population as a whole. Working examples of this extended hackathon concept have been provided by the recently closed H2020 project Open4Citizens, again from the city of Barcelona, but also from Milano, where an interesting experience of migrants' participation in the co-creation of services facilitating their access to citizenship rights was successfully carried out[10];

• data fuelled tools as **showcases of real and potential applications** that everyone can make on their own. This was the intuition of the pathbreaking Citadel…On the Move CIP (ICT-PSP) project, which took data management out of the realm of technical wizards and developed tools that even a 11-year-old can (and did) use to publish open data and make an app with it[11];

• data as **driver of cultural and behavioural change** in the young generations, as happens in the Interreg MED project EduFootprint[12] and in the Interreg CE project TOGETHER[13] , both led by the Province of Treviso,

8. https://en.wikipedia.org/wiki/Social_interface
9. http://www.socialinterface.com
10. https://en.wikipedia.org/wiki/Social_interface
11. https://joinup.ec.europa.eu/release/citadel-move
12. https://edufootprint.interreg-med.eu/
13. https://www.interreg-central.eu/Content.Node/TOGETHER.html

whereby introducing smart visualisations of collective energy consumption and innovative calculations of carbon footprints brings changes to individual and collective actions of college students.

Taken together, these and other possible examples give us two important messages:

• first, that the social interface of data management is far broader than what relates to personal privacy protection or, again in a defensive mode, to the analysis of psychological and cultural barriers against open data disclosure within the public sector;

• second, that the social dimension can be successfully exploited to bring Data driven Innovation to more effective, and long lasting, results – and we are purposefully not considering the experiments of community self-organisation, due to their unsolved sustainability issues as described in the previous section.

Indeed, most of the examples discussed above leverage the power not only of citizen initiative, but more generally of stakeholder aggregation and strategic alliances taking different forms such as living labs, user-developer and/or beneficiary-service provider partnerships. The odd thing is that these experiments have remained essentially local in nature, since the main points on their respective agendas deal with “datafying” city services, public administrations or the urban environment. If these unique and often temporary and fragile territorial partnerships can find a common ground for building trans-local connections – not between each party separately (ie the governments on one side or the civic communities on the other), but linking the partnerships as a whole – only then will Data driven Innovation grasp its full potential, allowing public action to mature from a mere exercise of regulation and legal compliance towards a useful platform at the service of digital businesses and economic development.

DATA DRIVEN INNOVATION IN THE MED PROGRAMME

While other domains such as energy and tourism include some on-going MED projects referred to above, only one partnership in the Social&Creative Community is explicitly and formally devoted to dealing with data for territorial innovation.

• The **ODEON** project aims at supporting the growth of Clusters and SMEs linked to the S3 – Smart Specialisation Strategies – of the partner regions, focusing on green/blue growth and Cultural and Creative Industry (CCI), through the exploitation of open and big data. Capitalising the previous experience of the HOMER project (funded by the MED programme 2007-2013) as well as utilising the FP7 LINDA repository of tools for linked data exploitation, ODEON supports public institutions to increase the quantity and quality of their published data. The project sets up 7 national/regional intermediary services (so-called Digital Hubs) able to assist SMEs and larger enterprises in taking greater benefit of data in their innovative services and products. Activities are framed within a quadruple helix approach, and a Med Open Data Cluster will be created to foster the linkages between Digital Hubs in order to increase their innovation and internationalization capacities. Each participating region focuses on one or more key sectors/applications such as Tourism, Agriculture, Environment, Energy, Culture, ICT and Smart Manufacturing.

POLICY TIPS

The main take away for policy makers is to focus on the creative and social interface of Data driven Innovation, not only in a defensive manner (e.g. to protect privacy and IPR) but also to create opportunities for growth and jobs. The following tips provide suggestions in this direction.

1. Encourage the spontaneous emergence of digital communities in your area, paying particular attention to supporting their sustainability across time.

This can be considered as an application of the Entrepreneurial Discovery Process[14] starting from the evidence that in many territories, groups of digitally smart people exist and, in some instances, have already delivered original and impactful results (such as the case of MappiNA already mentioned above). However, it is extremely uncommon that after an initial wave of enthusiasm, these communities reach a critical mass of activities and develop a sound business model to prosper over time. The recommendation to policy makers is to focus less on developing new such communities and more on helping the existing ones to gain momentum, connect with each other, and find opportunities for growth – both within and outside the region.

2. Support fresh data generation and existing data management, from both the private and public sector, rather than data exploitation for business and government related purposes.

Data is the real wealth of your territory. Investing in data generation at the local level is as rich in possible outcomes as promoting R&D and Innovation per se. Further, we argued – following the thread initiated by the OECD publication on "Data driven Innovation" – that data generation and to some extent, management (e.g. cleansing and regular updating) is an area of market failure, where the public hand may exercise its role as an alternative source of incentive. Then if a good data driven business or even government service emerges, they will easily find other, less ad hoc means of financial support during their start-up phase.

3. Promote national and international networking of your local data driven initiatives.

Whether public or private, research or business oriented, citizen driven or framed within Triple or Quadruple Helix partnerships, emergent data driven initiatives at the local level hardly possess the required critical mass – not to speak of their business model – to be successful in the long run. Your role as a "connected" policy maker – leveraging, for example, the opportunities coming from interregional cooperation in general and the MED programme in particular – can be as a matchmaker with similar initiatives at the broader national and international level. This can also increase the maturity of your local initiatives in terms of capacity to join global R&D and innovation networks, liaise with comparable communities and "hubs", and ultimately ignite those imitation and emulation processes that are usually facilitated by cultural and operational proximity.

We also remind you that one of the opportunities offered by the Social&Creative Community to regional and national policy makers is to receive a fresh and frequent update of the transnational activities supported by the Interreg MED programme that can help enhance and reinforce the effectiveness of innovation policies.

Want to stay up to date with activities and events related to Social&Creative Community in the MED programme? Sign up to the newsletter at **https://tinyurl.com/y8u46zv6**

14. Ricardo Hausmann and Dani Rodrik (2003) "Economic Development as Self-Discovery". Journal of Development Economics 72: 603-633.

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