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DATA-DRIVEN ECONOMIES IN THE WESTERN BALKANS

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SUMMARY

Building of European data economy is an integral part of Digital Single Market strategy in the European Union. Digital data is recognised as an essential resource for economic growth, competitiveness, innovation, job creation and societal progress in general. Estimation on possible data economy benefits on European Union scale are well known. At the same time, there is no quantifiable evidence on the state and perspectives of the data driven economy in Western Balkans. In this paper, we provide an overview and elaborate on the emerging opportunities for the establishment of data-driven innovation and data economies in Western Balkans, where National Spatial Data Infrastructures implementation and Open data initiatives could be seen as main drivers. In February 2018, European Commission also adopted strategy for Western Balkans, thus, confirming the European future of the region.

Key words: Spatial Data Infrastructures, Open Data, Data Economy, INSPIRE.

INTRODUCTION

Information is a critical asset that increases the value of data resources and underpins key parts of the economy. The ranges of activities where data and technology can be applied to increase the economic return are multiple. Taking geodata as a use case, the main economic driver on a pan-European scale is INSPIRE (Infrastructure for Spatial information in Europe).

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The context in which INSPIRE is evolving has a history of more than two decades. Looking back twenty years ago, the accessibility and online sharing of public sector data were minimal. Finding the right content was very difficult, if at all possible. Documentation was poor or missing and data were kept in incompatible formats. It was difficult and time consuming to combine datasets from different sources (Craglia, 2010). In order to overcome these challenges, strong coordination was needed between stakeholders at European and national levels. The most appealing solution for all was a pan-European Spatial Data Infrastructure (SDI), leveraging on existing national data infrastructures. In particular, this was addressed on a political level through the establishment of INSPIRE directive (Directive 2007/2/EC).

The implementation of the Directive is not yet finalised, however it already improved data sharing and interoperability between public authorities for environmental and other policies on European, but also on the national level[2]. In the last few years we can see an increasing number of spatial data and services available across European Union (EU) and beyond.

Moreover, the emergence of Open Data in this context helps to reinforce the importance of making data available (Dusart et al. 2016). During the last couple of years we have seen the emergence of national/regional and thematic Open Data portals. This has included efforts to make EU institutions data available as Open Data through the EU Open Data Portal, and further steps to help share content from national portals to a European platform through the Pan-EU Open Data Portal. Within the Open Data setting, geospatial data is playing a prominent role.

Finally, the recently published Communications on "Building a European Data Economy" (COM(2017)9) and "Towards a common European data space" (COM(2018)232) clearly highlight the increasing importance of data as a driver for growth, innovation and job creation. It is estimated that by year 2020, the value the EU data economy will increase to EUR 643 billion, representing over 3% of the EU GDP. To explore the situation in countries outside EU, during INSPIRE 2017 conference, the Joint Research Centre of the European Commission (JRC) co-organised the workshop with the World Bank, the UN Economic Commission for Europe (UNECE) and the Food and Agriculture Organization of the United Nations (FAO). The workshop explored the challenges and possibilities related with Data driven economy

[2] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52016DC0478R%2801%29

in Central and Eastern Europe (Kotsev et al. 2018). Several Western Balkans (WB) countries actively participated to the workshop: Albania, Bosnia and Herzegovina, Serbia and Former Yugoslav Republic of Macedonia.

The objectives of this paper are to further elaborate on the emerging opportunities for the establishment of data-driven innovation and data economies in Western Balkan countries. In the next sections, based on the inputs from the abovementioned workshop and additionally collected materials for Kosovo[3] and Montenegro, we provide an overview of the EU relation to the WB, and discuss National SDIs and Open Data Initiatives as drivers for data-driven economies in WB.

THE WESTERN BALKANS AND THEIR RELATION TO THE EUROPEAN UNION

The Western Balkans (WB) are a diversified and complex region (Figure 1, Table 1), where political and economic reforms are an integral part of the EU accession process and have ranked high on the policy agenda for the past fifteen years.

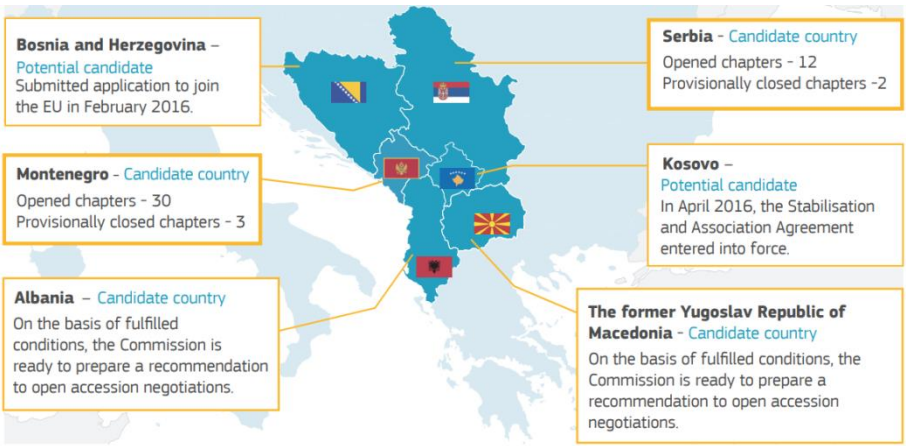

Figure 1: Overview of the EU relations with WB (Source EC Factsheet 2018).

Although individual countries of the region are at different stages of EU integration (candidate or potential candidate), all of them see EU

[3] This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence. This note applies to the whole document and each time Kosovo is mentioned.

membership as their objective. The EU is the WB's largest trading partner (43 billion EUR (2016)). EU companies are the biggest investors in the WB with over €10 billion of Foreign Direct Investments in the past five years.

Table 1. General information about Western Balkan region (Source: JRC, DG Eurostat and DG NEAR data)

Country	Population (2016) millions	GDP per capita (2016) EUR	EU financial support (2014-2020), million EUR	
			Total	Innovation and competitiveness
Albania	2,876	3,718	649,4	44,0
Bosnia and Herzegovina[4]	3,517	4,494	167,1	34,0
Kosovo	1,816	3,304	645,5	135,0
FYR Macedonia	2,081	4,691	664,2	73,0
Montenegro	0,623	6,355	270,5	21,2
Serbia	7,057	4,904	1.508,0	105,0

The attention of policy-makers in the region has been focused on questions of economic growth and competitiveness, albeit less so on using research and innovation (R&I) to achieve broader societal goals. At the same time, the European Commission (EC) has made research an explicit priority for competitiveness with important links to economic governance and the annual Economic Reform Programmes. All countries in the region have proposed reforms to modernize their policies and structures in support of research, technology and development (Matusiak and Kleibrink, 2018).

Considering this context, on the 6th of February 2018, the EC adopted a strategy for 'A credible enlargement perspective for and enhanced EU engagement with the Western Balkans', confirming the European future of the region as a geostrategic investment in a stable, strong and united Europe based on common values (COM(2018)65).

The Strategy sets out an Action Plan with six concrete flagship initiatives targeting specific areas of common interest: rule of law, security and migration, socio-economic development, transport and energy connectivity,

[4] For Bosnia and Herzegovina the time span covers only the period from 2014 to 2017

digital agenda, reconciliation and good neighbourly relations. Concrete actions in these areas are foreseen between 2018 and 2020. To support this, the EC proposes to gradually increase funding under the Instrument for Pre-Accession Assistance until 2020 in so far as reallocations within the existing envelope allow. In 2018 alone, EUR 1.07 billion of pre-accession assistance for the Western Balkans is already foreseen, on top of almost EUR 9 billion from the 2007-2017 period. Increased funding in the fields of transport, energy, the social sector, the environment, and private sector development, including the digital economy is foreseen.

The development of the EU "Digital Single Market" contributes to developing businesses, creating growth, boosting productivity, promoting innovation, transforming public services and improving citizens' quality of life. It is essential that the WB are included in the EU's efforts to embrace technological change for them to be able to benefit from digital tools, ensuring a prosperous and sustainable future for their citizens. Together with the partners in the WB, the EC will launch a Digital Agenda for the WB. The digital society should be developed and so support will be provided in particular to eGovernment, eProcurement and eHealth services as well as to the development of digital skills.

NATIONAL SPATIAL DATA INFRASTRUCTURES AND OPEN DATA INITIATIVES IN THE WESTERN BALKANS

Many activities have been focused on enhancing the access and sharing of data. As already mentioned, the main driver for making spatial data available across EU is the INSPIRE Directive (Directive 2007/2/EC). The Directive requires actions from EU Member States and also has direct implications for the countries neighbouring the EU, regardless of whether or not they are candidate countries. The Directive itself is not mandatory for WB countries, however they all follow the principles of INSPIRE (Cetl et al. 2014).

In addition, to foster the re-use of Open Government data in Member States, back in 2003 EC adopted the Public Sector Information (PSI) Directive (2003/98/EC)[5]. The Directive established framework rules regarding the availability, accessibility and transparency of Open Data in Europe. Furthermore, it was recommended to have a standard electronic licence for the re-use of Open Data and a tool to find the relevant data sets via a list of

[5] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:345:0090:0096:en:PDF

portal websites. In 2013, the PSI Directive was revised[6] and amendments were made to further embed "open by default" principles, with additional provisions on marginal cost-oriented fees, transparency and support to machine-readable and open formats.

The proposal for a new Directive on the re-use of public sector information [recast] (COM(234) final) will further stimulate the publishing of data, limit the exceptions allowing public bodies to charge for the reuse of their data and enlarge its scope to data held by public undertakings and research data resulting from public funding. It will also ensure coherence with the General Data Protection Regulation (GDPR[7]).

According to the Global Open Data Index for 2016, which measures the openness of data globally, the situation in WB differs significantly (Table 2).

Table 2. Global Open Data Index for WB in 2016 (source: Global Open data Index[8])

Country	Rank	Score (%)
Albania	47	36
Bosnia and Herzegovina	58	26
Kosovo	58	26
FYR Macedonia	52	31
Montenegro	49	35
Serbia	41	41

All countries in the WB are working with the Open Government Data (OGD) in some form (RESPA, 2015). They have all joined the Open Government Partnership (OGP), except Kosovo which is applying for membership. Albania, Macedonia, and Montenegro were some of the earliest countries to join the OGP, whilst BIH and Serbia joined in 2014.

The NSDIs development in WB is supported by the close cooperation and collaboration between National Mapping and Cadastral Authorities (NMCA) that became even more intense after the first regional conference in Croatia in 2008. It became an annual event that is held each year in a different WB country (Cetl et al. 2013). The last, 10th regional conference for cadastre and Spatial Data Infrastructure was held on 8-9 June in Skopje, FYROM, hosted

[6] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32013L0037
[7] http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32016R0679&from=EN
[8] https://index.okfn.org/place/

by the Agency for Real Estate Cadastre. About 100 delegates from NMCAs, universities and the private sector gathered in Skopje to share experiences, achievements, challenges and plans. Representatives of individual NMCAs were working on Cadastre and NSDI reforms during the past 10 years and discussed the future plans. Opportunities and future planned projects were in the focus of the event as well.

The „INSPIRATION – Spatial Data Infrastructure in the Western Balkans" project had a positive impact on the NSDIs development in the region. It ran from 2012 to 2013 (GFA Consulting Group 2013). As a multi-country project it aimed at promoting NSDI and coordinating its implementation in the WB countries[9] with a view to prepare beneficiary countries to meet the objectives of the INSPIRE Directive. The main beneficiaries of the project were the NMCAs that also played the role of principal coordinators and focal points.

As a sort of follow up in June 2014 the IMPULS Project started that will go on until autumn 2018 (Wasström, 2016). The IMPULS project is financed by Sida, the Swedish International Development Cooperation Agency. The project is managed by Lantmäteriet, the Swedish Mapping and Land Registration Authority together with the Croatian counterpart State Geodetic Administration as junior partner. Eight organisations are participating in IMPULS: Immovable Property Central Registration Office of the Republic of Albania, National Authority for Geospatial Information in Albania, Federal Administration for Geodetic and Real Property Affairs of Bosnia and Herzegovina, Republic Authority for Geodetic and Property Affairs of the Republic of Srpska, Bosnia and Herzegovina, Kosovo Cadastral Agency, Agency for the Real Estate Cadastre of the FYR Macedonia, Real Estate Administration of Montenegro and Republic Geodetic Authority of the Republic of Serbia. The project aims to achieve a sustainable impact on the implementation of the INSPIRE Directive that will enable the beneficiaries to meet the EU-requirements, as well as develop interoperability and e-government in each country. The project will provide the basis for how technical interoperability can be achieved, how authorities should disseminate spatial data in an electronic format via services, and how they should share spatial data with other public authorities and other countries.

In 2016 started the Western Balkans Academic Education Evolution and Professional's sustainable training for Spatial Data Infrastructures

[9] Including also Croatia

(BESTSDI[10]) project within Erasmus + Programme. The goal of the project is to give incentive to all universities in the partner countries in the region of Western Balkans to introduce Spatial Data Infrastructure (SDI) as a platform for spatial data usage in any applicative concept that upgrades SDI in their study programs in standardized and well-elaborated form.

The facts presented during the JRC Workshop at INSPIRE 2017 Conference (Kotsev et al. 2018) showed that WB countries are progressing well with their NSDI implementation in accordance with INSPIRE. In addition, some progress is also visible with regards to Open data.

Albania

The six medium term priorities of the Government of Albania settled in the National Strategy for Development and Integration (NSDI 2015-2020) include issues on ensuring innovative, citizen-centred good governance; enhancing innovation and competitiveness and sustainable and integrated management of resources such as land and water. An important element that the Government of Albania is trying to address through the e-government and citizen-centric service, is the development of standards and inter-institutional interaction frameworks in relation to accessibility and exchange and free flow of information and data.

The National Cross-cutting Strategy "Digital Agenda of Albania 2015-2020", among others important elements of the information society, e-government and citizen-centric service, addresses issues of the Infrastructure for Geospatial information. The Geographical Information (GI) and the geo spatial data service are an important part of e-Government of Albania.

The State Authority for Geospatial Information ASIG[11] is responsible for the establishment and functioning of national geospatial data infrastructure in the Republic of Albania, offering access to geospatial data through the national Geoportal[12] and expansion of the Gov Net infrastructure, e-taxes, e-procurement, e-customs, and e-patents. Currently, this geoportal offers 67 online services of various geoinformation topics, services that enable citizens and institutions to access online information, without the need to draft multiple papers and receive a response from the relevant institution. The Immovable Property Registration Office (IPRO) is one of the main

[10] http://bestsdi.eu/
[11] http://asig.gov.al/english
[12] https://geoportal.asig.gov.al

beneficiaries of the National geoportal. From the network services offered by this geoportal, borders of over 2.2 billion cadastral parcels are improved and are currently being corrected, with use of orthophotos.

The approval and implementation of new laws in 2014 "On right to information" and "On notification and public consultation" are the important indicators in 2016 for Albania ranked 47th worldwide according to the Global Open data Index. Regarding WB, Albania together with Serbia is leading the rank in the field of right to information. The Open data portal is providing many data sources[13].

Recently, Albania took also part of the initiative of Open Government Partnership (OGP). The object of this observation is the assessment of readiness for increasing transparency, the level of implementation of regulative reforms and the impact they provided in improvement of services for individuals.

Bosnia and Herzegovina

Considering its organization, Bosnia and Herzegovina is consisting of two entities, the Federation of Bosnia and Herzegovina (BA-BIH), and the Republic Srpska (BA-SRP), and one administrative district, the Brčko District (BA-BRC). Several projects regarding NSDI and Open Data are seen as important:

- KATASTAR.ba – The unique software for all cadastral business processes deployed in 79 municipalities in Federation Bosnia and Herzegovina (BA-BIH) with a centralized data centre
- E-SERVICES – A pilot project providing the first government e-Services to the citizens of BA
- RCN – Real estate price register for BA-BIH and Republic Srpska (BA-SRP),
- Address register for BA-BIH and BA-SRP.

The private sector should be a driving force behind the SDI and Open Data initiative as it could greatly benefit from both. Unfortunately, only finding out what data is produced at which administrative level takes effort. For example, one would have to contact more than 140 municipalities to get data about addresses and house numbers for the whole territory of BA.

[13] http://open.data.al

Some institutions in both entities have identified this problem and are working hard on its solution. One example is the Federal Geodetic Administration (FGA) which managed to implement KATASTAR.ba – the first IT system to be used by all of the municipalities in the BA-BIH. Before KATASTAR.ba, each municipality had its own way of managing their data. There were approximately 25-30 different software solutions and methods used to manage the same data. The unification of data maintenance and business logic enabled the BA-BIH to publish a centralized cadastral registry which is available to everyone and which covers the entire BA-BIH[14].

In BA-SRP entity, the GARS (Republic Administration for Geodetic and Property Affairs) acts in a similar way and both institutions cooperate on implementing the same projects. It is important to note that although these institutions have almost the same functions they abide by two different legal frameworks. The main difference is in jurisdiction as the GARS has jurisdiction over local cadastral and land registry offices and in the Federation, municipalities have jurisdiction over cadastral offices and the land registry offices are under court jurisdiction.

In both entities, there are laws and regulations regarding data sharing that institutions in their respective entity must adhere to. These regulations are set up to ensure transparency as well as privacy protection which, in terms of Open Data, represent two opposite sides and try to answer the question of what data must be shared, and what data should not be shared. Between these two sides is a non-regulated grey area in which the institutions should, proactively, share their data and at least try to make it as reusable as possible by sharing the data in its original, editable form.

Kosovo

In the context of the Real Estate Cadastre and Registration Project, the Kosovo Cadastral Agency (KCA) is currently working on the development of a strategy for the NSDI (Meha et al. 2015). This NSDI aims to transform the way spatial data and services are shared within Kosovo so it may underpin national social and economic development to the benefit of all. The strategy is strongly based on the principles of the INSPIRE.

Several NSDI components have already been implemented, such as the draft version of the Law, several public geospatial datasets, and the establishment

[14] http://katastar.ba

of the national geoportal[15]. The Geoportal is developed in accordance to INSPIRE standards meaning the inclusion of network services for searching, viewing and downloading geospatial data. Being the first geoportal in Kosovo, KCA paid extra attention to create a user-friendly web portal with lots of "help tools". Currently there are more than 2000 registered users.

Open data is promoted through Open Data Kosovo[16], a non-profit organization that believes in using civic-tech and digital humanitarianism to open government. This initiative promotes the idea that governance data should be made freely available for everyone to use and republished as they wish, without restrictions from copyright, patents or other mechanisms of control.

The former Yugoslav Republic of Macedonia

As an EU candidate country, FYR Macedonia already transposed the INSPIRE Directive into the Law on National Spatial Data Infrastructure. The open data initiative is formalised through the Law on Public Sector Data Use. Both were put into force in February 2014.

The Law on NSDI covers domains and activities on metadata, interoperability of spatial datasets and services, web services, data exchange, governing of the NSDI and general clauses. The Law transposes EU INSPIRE Directive, defining the spatial data themes from the INSPIRE Annexes, describing the NSDI organisational structure and identifying the stakeholders and milestones for implementation. Complete synchronisation of the NSDI with the INSPIRE Directive requirements is set for the end of the 2019. The administrative and technical coordinator of the Law implementation is the Agency for the Real Estate Cadastre (AREC). The Law recognises 19 more stakeholders, which are all governmental institutions of various levels. Currently, there are 74 web services published and documented within the metadata catalogue on the national geoportal[17].

The Law on Public Sector Data Use legally mandates public sector data availability and openness, taking in regard limitations for sensitive data, metadata scope, open data central register – data portal structure and functionality and up-to-date data status regulation. Governmental institution in charge of implementation of the Law is the Ministry of Information

[15] http://geoportal.rks-gov.net
[16] http://opendatakosovo.org
[17] http://nipp.katastar.gov.mk

Society and Administration. Concepts covered by the Law follow the EU Digital Single Market Open Data Policy. There are currently 25 institutions contributing with the 154 active datasets on the national open data portal[18].

Montenegro

Montenegro, as EU candidate country, is committed to EU integration process. Transposition and implementation of EU environment acquis have the highest priority. The Real Estate Administration is responsible for implementation of the NSDI Law and they establish and maintain a geoportal[19] that provides access to services for a number of metadata and spatial datasets. The implementation of the INSPIRE directive depends on adoption of a new law which would enable the integration of geospatial data from different sources into a functional unit. The draft of this law has been prepared during 2016 and sent for revision to the European Commission.

The Law on Free Access to Information from 2012 has implemented the Directive 2003/98/EC only in the part of free access to public sector information, but not in the part of the reuse of public sector information and OD licences[20]. Although Montenegro joined the OGP in 2011 and has drafted the Second Action Plan which is currently in the public debate phase, not much OGD is available, and it has no OGD portal. Open Data strategy is in the preparation but it is not yet adopted.

The Parliament of Montenegro adopted in 2017 amendments to the Law on the Free Access to Information, which, among else, regulate re-use of public data. The law introduced the obligation not only to share the data with public, but also to produce new and digitize existing databases, as well as to create an open data portal by May 2018, as the central address for accessing government databases[21].

Serbia

In the beginning of 2017, the Serbian Government adopted a Strategy of Measures and Activities for Increasing of Quality of Services in the Field of Geospatial Data and Registration of Property Rights in Official State

[18] http://www.otvorenipodatoci.gov.mk
[19] http://www.geoportal.co.me
[20] http://www.homerproject.eu/images/Docs_/Publications/OD_PLANS/MONTENEGRO__Open_Data_Recommendation_Plan.pdf
[21] http://institut-alternativa.org/en/montenegro-at-the-bottom-of-open-data-ranking/

Register – Reform Path of Republic Geodetic Authority (RGA) by 2020. The overall objective of the strategy is to support the economic reform of the Government by effective provision of information in the sphere of real estate and geospatial related activities for the fast, easy and rightful decision-making at all strategic levels. The main aims include the establishment of an efficient system for real-estate registration, improvement of quality, reliability and maintenance of spatial data and services, integration into the e-Government, advancement of NSDI, which would improve the access to geospatial information and simplify and speed-up communication between government, private sector and citizens.

The NSDI technical framework that encompasses the establishment of network services and application of the INSPIRE implementing rules aiming to reach interoperability by harmonization of spatial data themes under jurisdiction of RGA is planned to be developed until 2019. The Digital Platform of National Spatial Data Infrastructure can be used to collect data, connect it, and create added-value data according to user needs[22].

The availability of quality data, governance and exchange within the Government, as well as the general understanding of the policy-making process based on data, have been recognized as a key challenge for the transformation of the Serbian public sector in line with the European administrative space. The Serbian Electronic Government Development Strategy 2015 – 2020 recognizes the concept of Open Data. In 2016 a national Open Data portal[23] was established that provides some non-spatial data. At the same time, the importance of Spatial Data and NSDI for Open Data was recognized as well.

CONCLUSIONS

WB has a clear European perspective and future. However, individual countries have to meet European criteria. A credible enlargement perspective requires sustained efforts and irreversible reforms. Countries of the region are at different stages of EU integration and as part of their EU accession, they have drawn up national programmes and strategies to bring them into alignment with EU legislation. The focus and effort of the institutions in the WB countries is directed at meeting the criteria in order to achieve this goal. This huge and complex task includes the adoption and harmonization with EU acquis. Regarding data economy, it can be assumed that the role of

[22] http://www.geosrbija.rs
[23] https://data.gov.rs

digital data will be following a similar pattern like in EU, and is therefore expected to be contribution to an increasing relative share of Gross domestic product (GDP).

Lack of awareness and availability of data are seen as barriers to the full deployment of a data economy in WB. However, progress in NSDI implementation and Open data initiatives could be seen as a main drivers of data economy. WB is already showing multiple good practices regarding NSDIs with clear European dimension. Efforts that are more considerable is needed for open data to have noticeable effects on their societies. This will take strong commitment and hard work to foster a culture of openness, transparency and participation.

Continued support and joint actions by EU and international organisations (UNECE, FAO, World Bank, etc.) will help in WB alignment with European and Global Agenda. The focus should be on convincing the decision/policy makers in WB on one hand and on the other to serve stakeholders and citizen's needs.

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