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| Brazil (Federative Republic of) | | |
| proposal regarding business intelligence and data analytics tools for space services information | | |

# 1 Introduction

Considering the need for continuous efforts to evolve spectrum and orbit resources management information systems by means of data analytics tools, and that nowadays there are easy, quick and effective ways to integrate and generate information gathering data from several database sources by deploying Business Intelligence (BI) tools, Brazil would like to bring this issue to the attention of RAG and discuss the possibility of advising the Director the BR to evaluate the possibility of studying opportunities of new approaches especially for space services business intelligence tools in the context of future projects for BR Information Systems.

# 2 BI and data analytics tools

Considering the Big Data movement, and possible new opportunities for considerably improving the information sharing about all economic processes and human activities, several organizations have been implementing, and publicly deploying, interactive dashboards in data panels gathering several data sources and facilitating decision making in much more accelerated and efficient ways.

In telecommunications sector, several examples can be pointed out such as a data panel launched by National Telecomunications agency (ANATEL), an open tool in its website with filters, graphs, maps, indicators about the telecom sector in Brazil, including satellites with landing rights by orbital position, frequency band and operator, which can be accessed by the URL bellow.

* <https://www.anatel.gov.br/paineis/espectro-e-orbita>

Other good examples, also including georeferenced data, are:

* Agence Nacionale des Fréquences (ANFR): <https://data.anfr.fr/>
* UK spectrum map (Ofcom) : <http://static.ofcom.org.uk/static/spectrum/map.html>
* FCC Maps: <https://www.fcc.gov/reports-research/maps/>

The Business Intelligence platforms are typically implemented using “off the shelf” software solutions. Considering the high level of competition in this area, there are several available products in the market, that can read, correlate, transform and present interactive information in infinite possible ways, being sometimes more cost effective and user friendly than internally developed reporting systems which are developed in a sort of “reinventing the wheel” approach.

The idea of adopting “off the shelf” BI tools available in the market allows the organization´s IT software development teams to concentrate efforts in developing tools closely related to its core business, which means those very specific applications not easily available in the market, and which the BR has a very high expertise, such as complex engineering calculation software tools and databases for regulatory purposes, like the several Radio Regulations technical requirements and validations being applied into the satellite network filings for instance.

Once the data managed by the core software applications (i.e notices, validation and engineering calculations) is stored in transactional databases running standard technologies (ie. Microsoft SQL or SQL Lite), most of BI technologies available in the market can read it, integrate with additional data sources, and do the rest by minimum internal development efforts. Another more evolved approach is to allow the end user to serve itself with a self-service BI.

Finally, it´s important also to remark the command from Plenipotentiary Conference 2018 Resolution 186 Resolves 4), which calls for an opportunity in this regard:

*“…to improve the ease of access to, and transparency of, the information in the Master International Frequency Register published on the ITU website on satellite frequency assignments subject to this resolution…”.*

**Proposal**

In the sense of improving BR Information Systems, knowledge sharing, spectrum and orbit resources management activities, and also taking into account PP-18 Resolution 186, Brazil proposes that the BR could study the feasibility, by means of a cost benefit analysis, of acquiring and implementing web based “off the shelf” Business Intelligence and data analytics tools that could read all data from satellite network filings and publications, including SRS, and planned networks databases, along with GIMS contours, in order to provide Membership new technologies for consulting satellite network data, including georeferenced of coverage contours of satellite coverage and service areas in web based maps.

Additionally, and by the above mentioned approach, that this study could evaluate the risks and opportunities of leaving the BR to concentrate its software developing efforts focused on those applications related to ITU core business, such as notices submission, validation forms, engineering and regulatory technical calculations related to Radio Regulations requirements, including the related transactional systems and databases, leaving the reports, maps and consultation systems be implemented mostly by means of BI “off the shelf” web tools consolidated in the market.

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