Data Diplomacy

Updating diplomacy to the big data era

Executive summary

Data is often described as a critical resource of modern society, or even the oil of the new economy. Vast amounts of data are generated every day through the use of electronic devices and the Internet. The private sector has begun to harness big data sources to improve their products and services, streamline procedures, and ultimately increase revenues. Big data analysis is said to create insights that were hitherto unavailable. What is the position of diplomats, who rely on data and information in their everyday work, in this changing environment? Some ministries of foreign affairs (MFAs) and international organisations are tentatively exploring the uses of big data for policy planning, knowledge management, development, humanitarian action, and emergency response, recognising the potential benefits. Yet, there is still a large number of perceived obstacles that prevent others from stepping on board the big data train.

This report aims to increase the awareness of the opportunities, limitations, and challenges of the big data trend, and to understand how MFAs could adapt their work, procedures, and organisational structures to the big data era. In this report, we provide a broad overview of the main opportunities of big data in different diplomatic fields and functions, and highlight the key issues that need to be addressed for big data diplomacy to flourish. This framework of possibilities and constraints opens up a diversity of applications and implications that can be explored in further detail, and is meant to inform MFAs that are exploring big data to adapt diplomatic practice to the data-driven era where possible and feasible.

How can big data be understood in the framework of diplomacy?

Characteristics of big data: Although a contested concept, most definitions focus on the size and heterogeneous characteristics of the datasets, and the current speed at which the data is generated, requiring new tools for analysis, compared to more traditional sources of data. This is often related to the so-called four V's of big data - volume, velocity, variety, and veracity.

Output of big data: Other definitions focus on the new kind of information and knowledge that can be produced through big data, often taking the form of trends, patterns, and correlations.

Big data in data diplomacy: This report focuses on automatically generated data of relevance for diplomacy, including online data, sensor data, satellite data, and textual data. Through the generation of trends, patterns, and correlations, these new data sources can contribute to diplomatic functions and areas, while their technical characteristics provide several key considerations that need to be mitigated for big data's effective use in diplomacy.

How can we understand the concept of data diplomacy?

Data diplomacy - tool, topic, environment: Big data interacts with diplomacy in three ways. First, big data can be used as a tool to make diplomacy more efficient, effective, and inclusive. Second, it provides a new topic on the diplomatic agenda and features in international negotiations in areas such as cross-border privacy, e-commerce, and international cybersecurity, to name a few. Third, it is a factor that changes the very environment in which diplomacy operates, potentially shifting geopolitical and geo-economic positions. While this comprehensive approach falls largely outside of the scope of this report, it can be further developed in future research.

Big data as a tool for diplomacy: In this research, we focus on gathering, analysing, and integrating big data in negotiations, reporting, consular protection, and other diplomatic activities, while looking at the limitations and other key considerations that need to be mitigated to allow big data to flourish.

How does big data impact the core functions of diplomacy?

Core functions of diplomacy: We looked at four diplomatic core functions in the context of big data – information gathering and diplomatic reporting, negotiation, communication and public diplomacy, and consular affairs.

Information gathering and reporting: Information gathering is likely to be one of the areas that will be most affected by big data. Big data opens up new sources and new ways of analysis, from social media discourse to government open data and geospatial information, which can feed into policy-making and strategy. The digitalisation of diplomatic reports similarly provides new opportunities to analyse and detect patterns in the conduct of diplomacy. Ultimately, big data can serve to provide new insights, challenge biases, and corroborate information.

Negotiation: Negotiation is a fundamentally human endeavour. Big data can play a role by providing relevant arguments and insights to understand counterparts and support the development of negotiation positions and strategies. These insights might be especially important in the prenegotiation phase. Further, big data insights could provide common ground by adding external information that might be considered more objective, such as satellite images, on which agreements can be built.

Communication and public diplomacy: Generally speaking, the biggest promise of big data in the area of communication lies in the ability to understand patterns and trends in discourse, to tailor messages, and to measure the effectiveness of a communication campaign. Public diplomacy has adapted to the opportunities of digital technologies, and in particular social media, to become more effective in communicating with foreign and domestic publics. Diplomats are increasingly able to use these tools in new ways and improve their understanding of foreign and domestic discourse, as well as the effectiveness of the reach and engagement of their own messages.

Consular affairs: With experience in data management and a role in service delivery, consular affairs might well be the area to benefit substantially from big data. With increased demands from the public in its interaction with governments, consular departments are under pressure to keep up with the latest big data opportunities to optimise their online services. Big data can support consular functions in making use of internal data to improve consular service delivery, using innovative big-data-supported means to locate citizens in need, and using (social) media monitoring to react faster to or even predict crises and the need for consular services.

What is the role played by big data in various diplomatic fields?

Big data and trade: Statistics and data have long been at the core of trade promotion and economic diplomacy. Big data provides new possibilities to monitor and evaluate trade flows, especially with the advent of e-money, e-banking, and e-commerce.

Big data and development: With its ability to track patterns over time and space, big data can be of great value for development. In particular, big data could help track progress towards the Sustainable Development Goals (SDGs), by providing additional input for its indicators. For example, sensor and satellite data can be used for monitoring climate change, financial transactions can shine a light on economic differences between social groups, and social media data can help detect patterns in discrimination. Still, there is a need for a better understanding of how big data can be smoothly integrated into existing monitoring efforts. Big data in the development sector is also explored to assess the needs of beneficiaries, track aid flows, and monitor and evaluate programmes.

Big data and humanitarian affairs: As some forms of big data can become available rapidly, almost in real-time, they may be able to assist in responding to quickly unfolding emergencies and humanitarian action, and feed into early warning systems. The analysis of communication channels, such as mobile phone records and social media, is particularly valuable in detecting abnormalities and engagement on topics that could indicate emergencies. Yet, in these volatile contexts, it is more important than ever to ensure privacy and the proper managing and protection of personal data.

Big data and international law: As societies become increasingly dependent on digital tools and services, they leave behind an array of data, which could be transformed into new forms of accountability and evidence. International courts are now exploring how to use these traces, such as social media messages, e-mails, and geospatial data, to serve international law. These new sources open up new questions on the technical tools that are needed in international law to analyse big data, especially on how to verify the authenticity of such content.

Areas of big data potential
Big data can contribute to a number of diplomatic fields and functions, albeit in different ways. To generalise, we have identified six ways in which big data could benefit diplomacy and the corresponding fields and functions for which they are most relevant:

- Providing new information and challenge bias (information gathering and reporting).
- Meeting the expectations of government service delivery (consular affairs).
- Better understanding people's perceptions and behaviour (communication, public diplomacy, and negotiation).
- Tracking programmes and progress over time and space (trade and development).
- Tracking developments over short timeframes (humanitarian affairs and emergency response).
- Identifying new forms of evidence and accountability (international law).

How does big data analysis fit within the organisational culture of the MFA?

Big data as a tool, not a panacea: Big data is a tool to support good foreign policy. It does not aim to replace expert knowledge with automatisms.

Need for subject knowledge and context: Experts with subject knowledge, based on years of experience, are needed more than ever in the data-driven era because big data that is not embedded in its proper context can be dangerously misleading.

Emphasis on concrete benefits over technical details: The idea that big data analysis is only accessible to those with the relevant technical or programming skills needs to be countered by presenting the results of big data analysis, as opposed to talking about methodology, and by emphasising the contribution that these results can make to better foreign policy.

Carefully crafted relationships: Carefully crafted relationships between those working quantitatively and those working qualitatively within the MFA are important. Exchange and collaboration should be fostered where possible, while respecting the unique contribution of each.

How can the MFA adapt to meaningfully include big data practices and insights?

Keeping the aim in sight: Decisions about organisational transformation need to be driven by the goal of making better decisions and contributing to better foreign policy.

Establishing a big data unit: The big data unit should have a cross-cutting function and be able to serve a variety of regional and thematic departments in the MFA. It should be relatively small, diverse (consisting of data scientists as well as diplomats), and free to innovate and experiment.

Fostering exchange through big data champions: Appointing data champions within relevant departments and units can promote communication between the big data unit and the wider MFA in order to both disseminate big data insights, and to better understand the concrete needs of various departments and the role big data can play in addressing these.

What kinds of partnership are needed to update the MFA to the data-driven era?

Reasons for entering into partnerships: Partnerships will play an important role due to a lack of internal capacity and the challenges associated with internal retraining or hiring. Partnerships, especially with the business sector, will also facilitate access to otherwise restricted data. Further, building sustainable long-term relationships with relevant institutions, especially in the private sector and academia, can be another driver for partnership.

Outsourcing big data analytics: Several reasons contribute to the potential need for outsourcing big data analytics. In-house knowledge in relation to data science is, in most cases, still lacking. The demand for data scientists on the job market is outpacing the supply of highly qualified professionals. Outsourcing can save resources and be more cost-effective. Outsourcing increases flexibility and can be helpful if longer-term commitments to new units or a changed organisational structure are not yet plausible.

Need for a minimum of in-house capacities: Compared to the private sector, there are important limitations for the MFA related to the utility of outsourcing big data analyses. Especially when it comes to sensitive issues, it is advisable that MFAs develop their own in-house big data analysis capacities.

How can capacity-building needs in big data diplomacy be addressed?

Identifying needs: Existing capacities and capacity gaps need to be carefully identified, keeping in mind that not every diplomat needs to have the same level of familiarity with big data.

Offering different levels of training: With regard to capacity building in data diplomacy at the individual level, we suggest a three-tier structure, which reflects the different levels of expertise required.
- Foundation level: able to assess the challenges and opportunities of big data with a general knowledge of big data diplomacy.
- Practitioner level: able to work with big data tools and techniques to verify and find information.
- Expert level: able to design and implement appropriate big data tools for diplomatic insight.

Bridging worlds: The question of capacity building in big data diplomacy is also a question of enabling and supporting communication between two different worlds - the world of the data scientist and the world of the diplomat.

Enabling the best possible use of big data tools in support of the work of diplomats: Ultimately, the aim of organisational change and capacity building is not to transform diplomats into data scientists. Rather, the aim of all such efforts should be to highlight where big data can make a contribution to diplomatic practice and to support the work of diplomats through making the best possible use of the available tools.

What key considerations need to be mitigated for diplomacy to capture the potential of big data?

Big data can provide important opportunities for the MFA, from knowledge management and information gathering to monitoring programmes, understanding discourses, and delivering services. These opportunities are captured through organisational measures, such as creating a unit, forging partnerships, or engaging in capacity development. Yet, there are a number of practical considerations that need to be tackled in order for the MFA to make the best use of big data: data access, quality, interpretation, protection, and security.

Data access: While some big data can be found or generated within the MFA, most big data reside without. There is an increasing amount of open data, publicly available, that is ready to be analysed. This can be a good starting point to engage in data diplomacy. Similarly, open data within the MFA, such as unclassified texts and documents, can be obtained relatively easily.

Yet, most big data, such as mobile phone data or data from sensors, is held by the private sector and is confidential, classified, or only made available against a fee. Obtaining this data requires entering into partnerships, which can be complex to negotiate. For such partnerships to be effective, there is a need for transparency about the motivations, policies, and regulations of both the MFA and the data provider; a framework of accountability; and a fair value exchange between the two parties.

Data quality: Advantages related to the size of a big dataset also engender important challenges. These datasets are often messy and difficult to manage. Key concerns relate to big data's complexity, completeness, timeliness, accuracy, relevance, and usability. Before embarking on a data diplomacy project, it is important to assess the quality of the data and to decide whether it is feasible to proceed and worth the effort.

Data interpretation: Just like any other analysis, the study and interpretation of big data can be prone to important biases. For big data, there is a particular need to be aware of the risk of confusing correlation with causation. A big dataset with many variables can detect many inter-relations, yet often not with a causal character. In addition, there needs to be an awareness of selection biases, as big data often only includes those who are using digital devices, and risks creating gender, generational, or wealth gaps. Finally, the interpretation of data can be tainted by political incentives, as there is usually more than one way to frame and visualise the outcomes of a study.

Data protection: The collection, management, and analysis of big data needs adequate data protection provisions to avoid violating privacy rights and to protect the reputation of the MFA. Relying on open data, minimising the data that is collected, and only sharing or obtaining aggregate data could help to keep privacy risks to a minimum and to maintain the trust of the people whose data is used.

Data security: To avoid data breaches, the MFA needs to invest in technical infrastructure and in training staff on the proper management of their own and others' data. Data security could involve securing the data location, the data format, and the data design.

Through advancing an understanding of what big data can do for diplomacy, how it can be put to use by MFAs, and which aspects need to be kept in mind when using big data, this report aims to ultimately serve as a toolkit for data diplomacy.

Download the full report: https://www.diplomacy.edu/datadiplomacy/policyresearch

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