



## PROFESSIONAL ARTICLE

# New Eyes for an Old Challenge: How the Portuguese Ministry of Justice is Using Sankey Diagrams to Improve Knowledge on the Judicial System Dynamics

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For almost a decade Portugal has focused on the continuous advances of its judicial system. This professional article aims to illustrate how the Portuguese Ministry of Justice is using Sankey Diagram to improve knowledge on the Portuguese Judicial System, showing undeniable enhancements in the last decade. Based on the Portuguese experience, the text provides a concise and straightforward contribution to the justice sector by means of shared know-how and aims at inspiring other judicial systems to seek continuous improvements by implementing this uncommon technique.

**Keywords:** Portuguese Ministry of Justice; Judicial System; Sankey Diagrams; Data Visualization; Justice Challenges

## I. The Portuguese Case

### *a) Troika's Portuguese Ministry of Justice Experiment*

Portugal went through a challenging phase in the near past. In 2011, the Memorandum of Understanding (MoU) was signed between the country, the European Commission, the European Central Bank, and the International Monetary Fund, establishing a set of recommendations for various sectors. Specifically, in the field of justice, measures were aligned with the objective of improving the functioning of the judicial system and restructuring the courts system for greater efficiency. In order to comply with the reform of the judicial system, Portugal placed the reduction of backlogs as one of the first orders of business. Nine years have passed since the MoU signing, and the financial and economic support program is long

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concluded. Despite its rigorous side, Portugal overcame the weak financial situation and the crisis. Policy makers, citizens and businesses had an opportunity to reverse the structural problems of society, and the judicial system.

### ***b) Portugal and the Judicial System Dynamics***

Nowadays, Portugal continues to seek new ways to improve and to successfully face the ever-renewed challenges and changes on the judicial system dynamics (Guimarães, et al., 2017). One of the great commitments of the Portuguese Ministry of Justice is the dissemination of statistical information to society, as statistics are not only a public good, but furthermore they present themselves as a central tool for planning and monitoring justice policies. Any person around the world can search for statistical information about Portuguese courts, registries and notaries, police entities as well as other statistics of the justice sector at the Justice Statistical Data System (SIEJ) portal (<https://dgpj.justica.gov.pt/English/Justice-Statistics>), a service provided by the Directorate General for Justice Policy.

One of the statistical techniques recently developed and adopted by the Ministry of Justice is the use of the so-called Sankey diagrams.<sup>1</sup> The final outputs require a clever combination of procedural movement data analysis (incoming, closed and pending cases), software such as Microsoft Excel, SankeyMATIC and Microsoft PowerPoint, and a careful examination of the legal procedural flow for each procedural area. Portugal has decided to implement this sophisticated technique to allow ground-breaking civil justice and criminal justice overviews, allowing not only access to detailed information to experts or researchers in the justice field about procedural workings and figures, but also to a broader public.

The Sankey diagram regarding civil justice (**Figure 1**) provides the observation of the two main phases of civil proceedings in Portugal: the declarative phase and the enforcement phase, including the respective term modality. At the beginning of the flow, we can observe the totals of the new cases entered, distributed between civil cases, labour cases, tutelary cases, and new payment orders. Below the flow is also presented a set of main indicators: clearance rate, disposition time and average duration of completed cases/procedures,<sup>2</sup> and the respective time series for this last indicator.

Regarding the criminal justice Sankey diagram (**Figure 2**) it is particularly relevant, as it presents the sequence of different phases (investigation, inquiry and trial, as well as information about persons involved), allowing a single view of a chain of events for which several different and independent Portuguese institutions are responsible. In addition to the efficiency indicators mentioned above, it also presents the coercive measures and sentences associated with the criminal justice system. Information about inmates and about completed juvenile inquiries is also presented.

## **II. Final Considerations**

For almost a decade Portugal has focused on the continuous improvement of its judicial system. The Portuguese Ministry of Justice has sought to evolve and better understand the challenges of the systems it manages, in order to better serve society, provide a more efficient response to international entities and modernize the public apparatus, since this posture is fundamental to increase productivity and consequently the quality of services provided to the citizen. Therefore, the Sankey diagrams started to be a statistic technique implemented

<sup>1</sup> A Sankey diagram is a flow diagram, which highlights amounts in a data series. It is a new technique used to visualize several data types and different tasks in a flow diagram. This way to visualize data is considered a user-friendly technique for readers (Vosough, Kammer, Keck & Groh, 2019).

<sup>2</sup> For a more in-depth study of the efficiency indicators used by the Portuguese Ministry of Justice, consult (Correia & Videira, 2015, 2016).

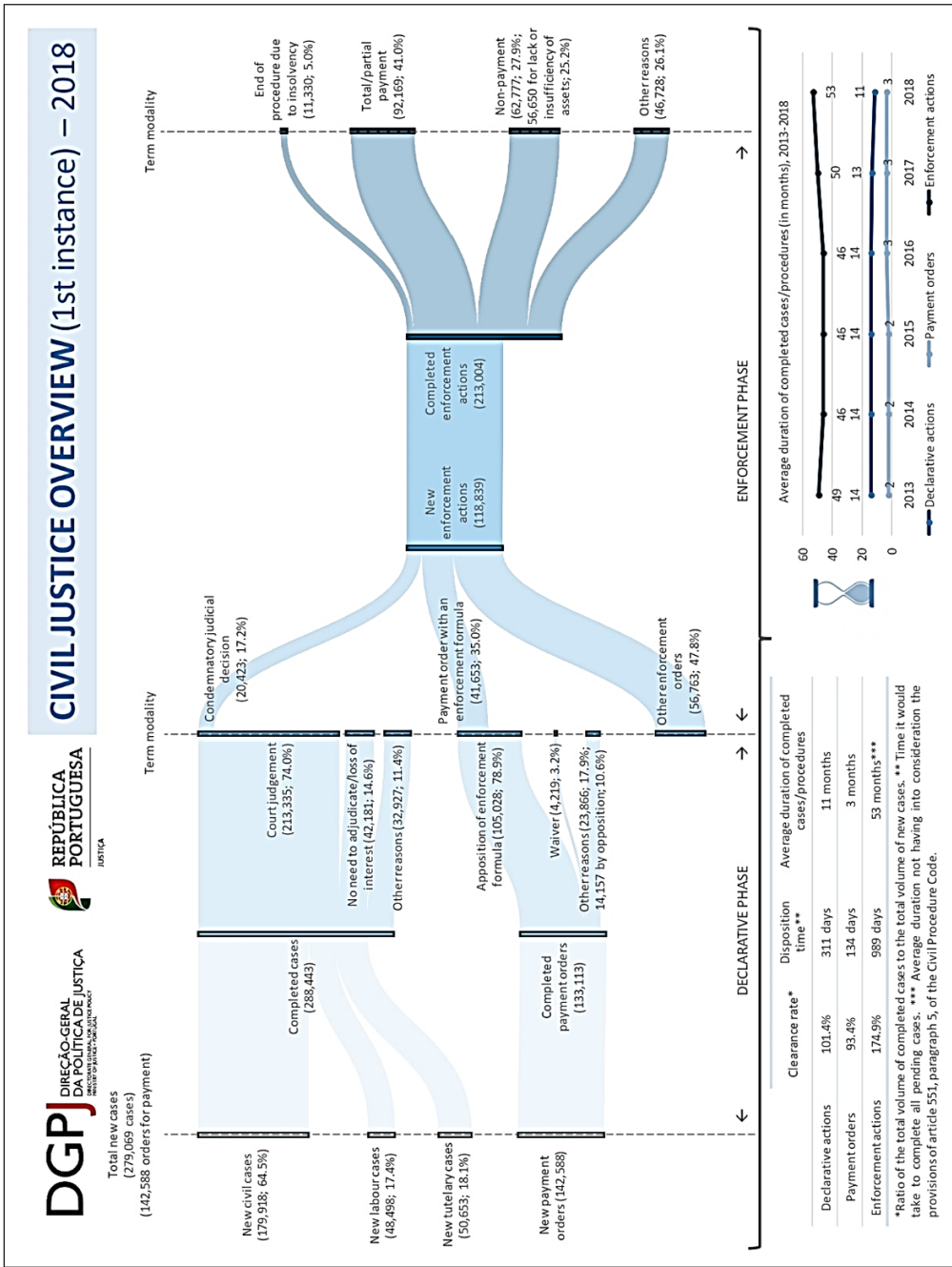


Figure 1: Sankey Diagram regarding Civil Justice (2018).

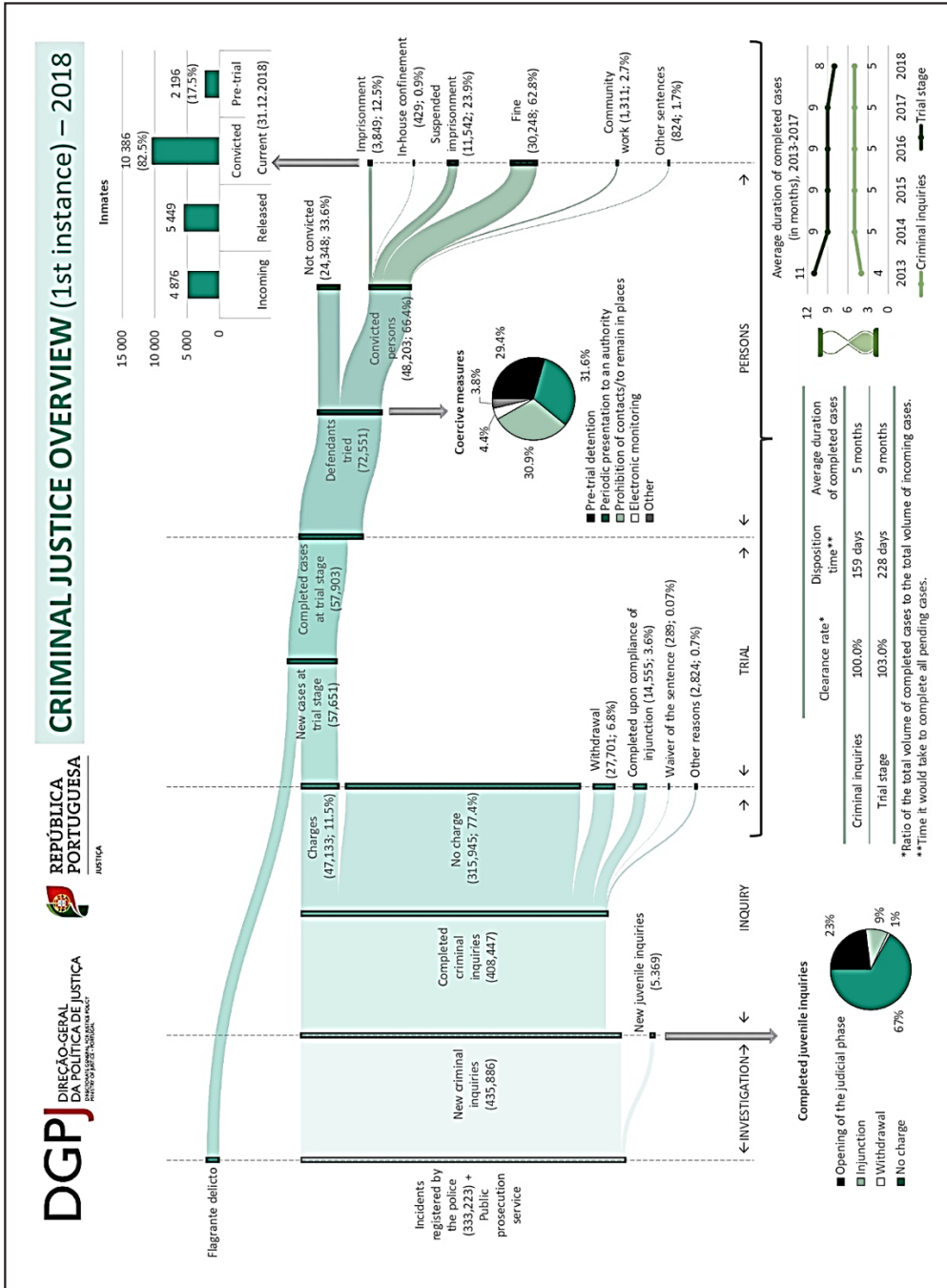


Figure 2: Sankey Diagram regarding Criminal Justice (2018).

and regularly used in Portugal, in order to have a better understanding of the judicial system and to enable constraint recognition, as part of a continuous improvement effort by the system. We suggest to the European Commission for the Efficiency of Justice the incorporation of Sankey diagrams in its regular reports on the efficiency and quality of the European Union's judicial systems (European Commission for the Efficiency of Justice, 2018). For Portugal, the next steps may include the expansion of the technique to new jurisdictions, such as the administrative and tax jurisdiction; to carry out experiments with diagrams dedicated only to certain types of processes, particularly the most representative and challenging for the system such as civil enforcement actions; and to construct Sankey diagrams per year of entry, to allow observing the evolution of the procedural flow over time. The judicial system is a component of the public sector, governed by its own and well-defined values such as transparency, accountability, among others (see, for instance, Bilhim & Correia, 2016, Correia & Bilhim, 2017, Correia & Pereira, 2017, 2018). In this sense, statistical information that improves the community's perception of these values associated with the public sector is always welcome.

### Competing Interests

The authors have no competing interests to declare.

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