HANDBOOK ON COURT DASHBOARDS

European Commission for the Efficiency of Justice (CEPEJ)

Document adopted by the CEPEJ at its 36th plenary meeting (June 2021)

cepej
European Commission for the Efficiency of Justice
Commission européenne pour l'efficacité de la justice
COUNCIL OF EUROPE
CONSEIL DE L'EUROPE

Strasbourg, 17 June 2021

CEPEJ(2021)8REV1

EUROPEAN COMMISSION FOR THE EFFICIENCY OF JUSTICE (CEPEJ)

HANDBOOK ON COURT DASHBOARDS

Document adopted by the CEPEJ at its 36th plenary meeting (16 and 17 June 2021)

Contents

Introduction

> A balanced set of performance indicators is like gauges on the dashboard of a car; destination is the mission. Each gauge represents an aggregated (or derived) indicator, summarising the performance of a relevant part of the process of interest… The driver's primary focus is to move the car safely in one direction while watching for obstacles on the road… This is exactly what a good "driver" in an organization should be doing. (Franceschini, Galetto and Maisano 2019).

This handbook[1] is designed to assist stakeholders in the courts systems – primarily court managers – with the task of designing management dashboards to track, analyse and display data on the performance level of the courts.

For this purpose, this handbook provides practical suggestions and recommendations and invites readers to modify and add to any recommendation or guidance in order to meet the unique needs and characteristics of their specific courts system.

The handbook will address four aspects of the process of designing a dashboard: the first is the content of the dashboard; the second is the visualisation of the data; the third is the technical requirements involved in the process; and the fourth is a list of concise and practical guidelines for judiciaries seeking to develop such a system of court management dashboards.

Accordingly, Chapter A will open with a general definition of "data dashboards" and the "key performance indicators" (KPIs) that these dashboards should include. This will be followed by a short review of the main objectives of dashboards. Chapter A will then proceed to review common classifications of dashboards and suggest classifying them by their object of observation – that is, the performance level of the entire court (organisational dashboards) or that of the individual judge (personal dashboards). In this respect, it should be highlighted that the judge-level dashboards seek only to provide the individual judge with tools to better manage his or her work time and better handle their case-related workload. This should not be confused with performance assessment. Finally, Chapter A.3 will apply the general definitions in the context of the courts system, identify the relevant KPIs and group them into recommended sets. This list of recommended sets of KPIs will focus on six sets that influence the length of judicial proceedings and overall time management, in accordance with the strategic goals of the CEPEJ-SATURN working group on judicial time management. In this respect, it should be emphasised that the six sets of KPIs listed in this handbook serve as a starting point alone and can (and/or should) be extended based on the needs, available data sources, IT capacity and capabilities in each judiciary. In other words, the readers are encouraged to review this list and tailor it to their specific needs, taking into consideration the type of data they seek to monitor and analyse; the level of reliability of the data; the degree of accessibility of the data; and the technological and human resources available to produce the data, update them and design the visual representation of the data.

In Chapter B the readers will be acquainted with basic principles and key terms of design (type of data visualisation, layout and flow, etc.), and the strength and weaknesses of different design choices.

Chapter C will present and analyse six court-level template dashboards, as an example from which to take inspiration.

Chapter D will complete the portrait by displaying our proposed design for four judge-level template dashboards and an accompanying template for a CMS report.

Chapter E will review the technical requirements involved in the process of designing court dashboards and Chapter F will finalise the list of practical guidelines for judiciaries considering developing and designing a system of court management dashboards.

[1] The handbook was drawn up under the supervision of the Working Group on judicial time management (CEPEJ-.SATURN) by scientific experts: Shanee Benkin (Israel) and Martin Mikuš (Slovak Republic)

A. Content of the dashboards

A.1 General definitions and purpose

A.1.1 What are data dashboards and performance indicators?

A dashboard is a visual representation of data in the form of tables, charts, graphs, diagrams, maps, colour-coded scales, etc. This visual representation is a management tool that aims to track, analyse and display data on the performance level of an organisation or a business process, and centralise them into one location (a "one-stop shop"). In other words, data dashboards are a tool for understanding, managing and improving the performance of a given organisation, system or process by focusing on the relevant performance indicators (Eccles 1991).[2]

Performance indicators are the data items that represent the result of a performance measurement and are generally expressed in a numerical figure and a unit of measurement. The numerical figure provides information on the quantity or magnitude (how many/how much?) and the measurement unit represents the object being tested (the "what") (Franceschini, Galetto and Maisano 2019). For example, one of the most commonly used performance indicators in judiciaries around the world is the number of annual resolved cases ("how many cases" were resolved in one year).

Key performance indicators (KPIs) are a selected group of predefined data items that, ideally, satisfy the following demands (UNI 2003):

- consistency with performance goals – KPIs should provide relevant data on the desired performance targets of the organisation, process, unit, etc.;
- clear-cut definition – KPIs should be simple and easy to understand/interpret;
- reflection of trends – KPIs should indicate time trends;
- correlation with internal and external changes in the organisation – KPIs should "respond" to changes within or outside the organisation;
- simplicity of data collection – KPIs should require minimal effort of data collection and data processing;
- sustainability – KPIs should be updated easily and quickly.

Respectively, these six criteria will assist us in identifying and defining the list of recommended KPIs that should be displayed in an effective court management dashboard system. This list will be discussed in detail in Chapter A.3.

A.1.2. Why use performance indicators?

A few of the practical reasons to use performance indicators include the following (Bourne and Bourne 2011).

- Performance indicators are an integral part of the overall assessment of the degree to which the performance of the organisation fulfils the goals and the strategic plan of the organisation. In other words, performance indicators focus the attention on relevant aspects for achieving the required output and provide feedback on progress towards the objectives of the organisation. In this respect, measuring and improving performance in the judiciary (results-oriented management) affects multiple aspects of the courts system with special emphasis on the administration of justice, access to justice and the right to a fair trial within reasonable time.

- Performance indicators improve communication both internally (among the different employees of the court for example) and externally (within the courts system and among its customers and/or stakeholders).

- Performance indicators support the process of decision making by demonstrating the potential of a given programme, process or policy, and may provide justifications for its cause and cost.

[2] For further information concerning references, please see the bibliography at the end of the handbook.

A.2 Initial classification of the dashboards

There are several ways to classify the different dashboards. A basic content-based classification is according to the type of data presented in the dashboards (time-use data or time-management data, financial data, HR data, IT project management data, etc.).

Another way to classify the different dashboards is by their target audience. For example, dashboards can be divided into management-level dashboards (high-level, mid-level or low-level management) and non-management-level dashboards (all users or specific users).

A different classification may categorise the dashboards based on their purpose: operational, analytical, tactical and/or strategic. In this respect, operational dashboards monitor the KPIs of the organisation and describe the current level of performance. Analytical dashboards analyse the operational data to help users make the best sense of the data and establish goals. Tactical dashboards filter and segment the data at a higher level of detail than that of the analytical dashboards, capitalise on the interactive nature of dashboards, and further advance the analysis required for future strategies. Finally, strategic dashboards are those that focus on the previously set long-term goals and reflect progress towards them while spotlighting specific initiatives that are in play to reach these goals (Durcevic 2020).

However, cross-referencing the above classifications shows a possible overlapping between them. For example, a single dashboard can contain different types of data (financial, HR and time data) and therefore cannot be classified based on a single type of content. Additionally, the sub-categorisation into operational, analytical, tactical and/or strategic dashboards may prove to be artificial. For example, most of the operational dashboards include analytical aspects and the line between tactical and strategic dashboards can be very thin.

For this reason, the different dashboards were classified based on their object of observation, that is, the performance of the entire court/court system or the performance of the individual judge. This classification will divide the dashboards accordingly into **court-level** and **judge-level** dashboards, as shown in the following table (Aikman 2006).

Table 1: initial classification of court dashboards

	Court-level dashboards	Judge-level dashboards
Object of observation	The performance of the entire court/instance/region/court system.	The performance of the individual judge (cases, tasks and calendar).
Target audience	Mainly court management officials, judges and staff supervisors. Some of the court-level dashboards may also be made available to the general public.	The individual judge, with possible access for the president of the court as needed.
Purpose	Guide to the performance of the entire court/court system.	Guide to the performance of the individual judge.
Time frame of data set[3]	Most often, ranging between a quarterly review (three months) or an annual review (the last three years).	Depending on the type of activity, it may range between one week and twelve months.

A.3 Recommended KPIs for courts systems

It is important to explain that depending on the type and scope of statistical data that are available in each judiciary, the list of KPIs that influence the length of judicial proceedings and overall time management can be endless. Simply put, the level of detail and accuracy of the list of KPIs is directly linked to the level of detail and accuracy of the sources that store and analyse the relevant data. In other words, the more detailed and reliable the data source is, the more elaborate and detailed the dashboards can be.

[3] The timeframes listed above are those commonly used in most dashboards and can of course be amended to suit the needs and characteristics of each judiciary.

For example, an advanced, well-designed, computerised and reliable case-management system (CMS), which is updated and monitored continuously, can provide data on a long list of optional performance indicators such as:

- number of parties in the case;
- number of hearings conducted per case;
- number of approved motions to reschedule hearings;
- length of a single hearing (in minutes) per each type of hearing in each case;
- length of procedural stages in each case (number of days for pre-trial stage, trial stage and post-trial stage);
- number of documents/motions (or even pages) submitted in a case;
- number of judgments rendered in each case (non-final decisions and final judgments that conclude the case);
- number of cases disposed in each manner of disposition (non-final judgment, judgment on the merits, consent judgment, default judgment, etc.), number of judges per type of proceedings (civil, criminal, etc.).

This open-ended list of optional KPIs illustrates the high level of detail that can be reached. At the same time, a long list such as this may overwhelm the users with data and unnecessarily burden the process of data collection and analysis for the purpose of designing a dashboard.

Therefore, to ensure a concise and practical list of KPIs, this handbook will focus on selected and recommended KPIs that satisfy the six requirements listed in Chapter A.1.1:

- consistency with the relevant performance goals – the list of recommended KPIs will focus on time-oriented performance indicators consistent with the goal set out in the mandate of the CEPEJ-SATURN working group on judicial time for 2020-2021 to ensure "the right to a fair trial within a reasonable time as protected by Article 6 of the European Convention on Human Rights";
- clear-cut definition – to the greatest extent possible, the definitions of the recommended KPIs will be based on the CEPEJ Glossary as well as the Evaluation Scheme and its Explanatory Notes;
- reflection of time trends – all KPIs will be time-oriented;
- correlation with internal and external changes in the judiciary;
- simplicity of data collection and sustainability – both of these requirements are met due to the fact that data on the recommended KPIs is collected consistently and continuously by the member states on a biannual basis in the framework of the CEPEJ scheme for evaluating judicial systems.

Respectively, the following table will present the list of KPIs that were grouped into six recommended sets of KPIs.

Table 2: Recommended sets of KPIs for performance dashboards

Recommended sets of time-oriented KPIs		
1	**General case counts**	Case counts of the incoming cases, resolved cases and pending cases.
2	**Backlog analysis**	Case count of pending cases by age group, case type, current status of the case, accompanied with timeframes (number of pending cases over one year/two years/three years old, etc.). The current status of the case may be defined, for example, by the last activity performed in the case or by the procedural stage they are at (such as pre-trial, trial, post-trial).
3	**Duration of proceedings**	Case age at disposition – the number of days between the filing date of a case to the date it was resolved.
4	**Clearance rate**	Resolved cases per case type ÷ incoming cases per case type x 100
5	**Calculated disposition time**	Number of pending cases at the end of the year ÷ number of resolved cases within that year x 365 days
6	**Manner of disposition**	Segmentation of the resolved cases by manner of disposition, that is, the proportion of cases resolved "on the merits" or by way of "consent judgment", "default judgment", etc.

As mentioned above, the list of recommended sets of KPIs serves only as a starting point for judiciaries looking to set up a system of court performance dashboards. This list is meant to be reviewed and modified in

accordance with the needs and characteristics of each judiciary as well as with the object of observation (the individual judge or the entire court).

For example, a certain judiciary may decide to add two KPIs to the set of "duration of proceedings": the "number of parties in a case" and the "number of motions submitted in a case". Such additions will allow the court managers to draw conclusions on the impact of these two KPIs on the duration of the proceedings in the case. Another adjustment to the list of recommended sets of KPIs can be made regarding the time frame of the data set in each set of KPIs. For example, certain judiciaries may choose a monthly review of the data, or a quarterly and annual comparison of the data, for example.

Additionally, all of the recommended sets of KPIs in Table 2 can be visualised in a court-level dashboard as well as in a judge-level dashboard. With that said, it is important to note that the design of a judge-level dashboard may require adjustments to the composition of KPIs in order to match the functionality, the role and the needs of the individual judge. One example for such a personalised judge-level dashboard is that of a "judicial tasks-management dashboard". This dashboard can guide and improve the performance of the individual judge by providing him/her a weekly (or monthly) review of pending judicial tasks such as: the number of pending cases listed by procedural stage (pre-trial, trial, post-trial) and by case type; the number of hearings scheduled for the upcoming week, sorted into weekdays and file number; the number of cases awaiting final judgment (sorted by deadline to render the decision in the case); or the age of pending cases (days since filing day). As previously discussed, a composition and design of this sort relies on the ability to extract reliable and valid data, to analyse them and to draw conclusions that can later be reviewed and updated after a pre-determined period of time. A template judge-level dashboard such as this will be provided in Chapter D.

To sum up, the first step in setting up a dashboard system is to identify the relevant data items that qualify as KPIs. For this purpose, we referred to six criteria that a KPI should, ideally, satisfy (see Chapter A.1.1: consistency with performance goals, clear-cut definition, reflection of time trends, correlation with internal and external changes in the judiciary, simplicity of data collection and sustainability). Based on these conditions we offered an initial list of KPIs that were grouped into six recommended sets of KPIs. This list forms the initial and essential foundation for a successful dashboard system and can of course be reviewed and adjusted to meet the specific requirements, unique characteristics and technological capabilities of each judicial system. Accordingly, the next chapter will address the issue of data visualisation and recommended design choices.

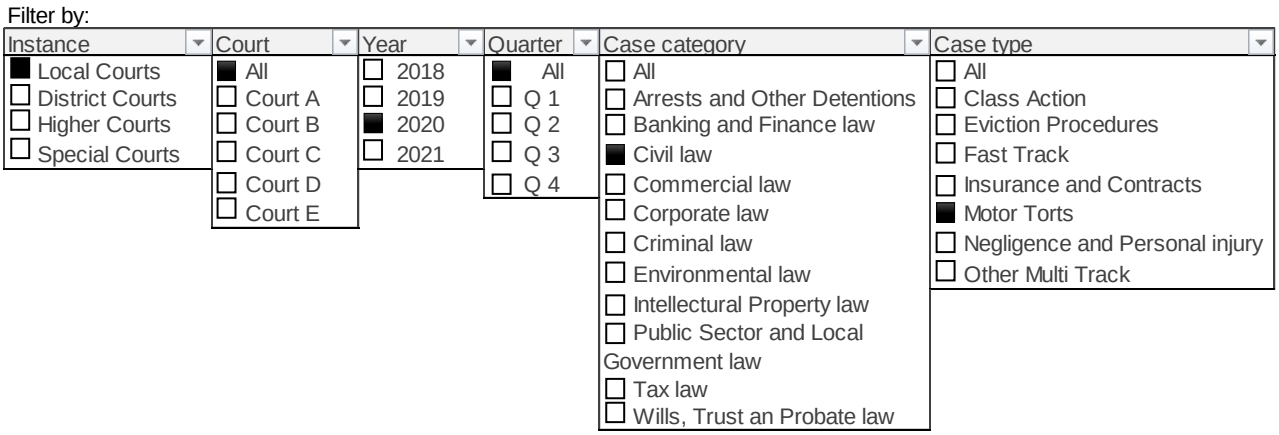
B. Visualisation of data

This chapter aims to acquaint the readers with basic principles and key terms in dashboard design, such as: filter toolbars, building blocks, types of charts and their suitability for visualising the selected sets of KPIs, semantic colours and special features. This introduction will lay the groundwork for the following sub-chapters that will display and analyse templates of court-level and judge-level dashboards designed according to these principles.

B.1 Data filtering

One of the features of a well-designed dashboard is an effective data filtering mechanism to allow users to focus on a defined group in the larger data set. This is done by **click-to-filter options** that determine the level of detail of each dashboard. In the following example you can see **a horizontal filtering toolbar**[4] consisting of six filter values that users may want to focus on in reference to each of the recommended sets of KPIs. These filter values include a select choice of instance, court, year, quarter of that year, case category and case type.

[4] A horizontal toolbar may be preferable to a traditional sidebar because of the tendency of users to overlook or ignore the sidebar. Another advantage of the horizontal display is that it frees up the sidebar space and allows for a larger display in the body of the dashboard itself.



As shown in the above example, each filter uses a custom designed drop-down to display checkboxes for each filter value and can allow multiple filtering values of the same type to be selected. In this respect, it is recommended that the mix of values to be chosen are displayed outside the drop-down (above or underneath it) to understand the exact criteria the dashboard was filtered by, and to avoid misinterpretation of the type and range of data that the dashboard displays. This filtering toolbar can of course be extended or reduced, in accordance with the purpose of each dashboard and the type and scope of data that are available and reliable in the data source that the dashboard relies on (be it the CMS, an independent e-filing system or any other computerised data source). For example, the filtering toolbar can also include a “judge” filter (for judge-level dashboards) or a “procedural stage” filter (pre-trial, trial, post-trial, etc.) to allow for an even more detailed and accurate display of the relevant data in each dashboard. Likewise, the toolbar can settle for the “case category” filter and exclude the “case type” filter if the list of case types in a certain instance or court is too long to be displayed in the limited space of the dashboard screen (for example, if there are more than 10-15 case types in each case category). A final note is that the option of multiple choices under each filter should not be overused to avoid a crowded dashboard that might overwhelm the users with data.

B.2 Composition of KPIs, layout and flow

In principle, a single screen/dashboard can display all of the six recommended sets of KPIs and more. However, as previously mentioned, choosing to do so may require limiting the data filtering to avoid multiple choices that will compete for the limited space of the single screen and the attention of the users. In other words, if you choose too many variables, they might not fit onto one screen.

To best organise the data in such limited space, it is therefore recommended to first identify possible dependencies between different sets of KPIs that may justify their layout on the same screen, one next to the other, to complete the full portrait and create a continuous flow. For example, if a given dashboard focuses on resolved cases, such a dashboard can choose to display the three related sets of KPIs that are the “clearance rate”, the “calculated disposition time” and the “manner of disposition” side by side.

After deciding the level of detail and grouping the sets of KPIs to display in one screen, it is then recommended to arrange the information in aligned building blocks with consistent structure and simple and clear titles that leave most of the space to the content itself, and a natural flow that allows the users to find the data they are looking for in the order and location they would expect. In this respect, and as a general rule of thumb, it is recommended to limit the number of building blocks/charts presented in one screen to 7-10 at the very most, to ensure an effective layout that will not overwhelm the users. The following example illustrates three different layouts of the building blocks in a dashboard, bearing in mind that there are many more options of course.

As a general rule, users tend to focus first on the top-left corner of the screen and move on from there to the right and then move down to the following row (Bakusevych 2018). For this reason, it is customary to reserve the first building block on the left side of the screen for the KPI or KPIs set you would like to prioritise in the dashboard (for example, the clearance rate).

B.3 Types of visual representation and correct use of colours

The most common and convenient way to display a lot of information on a large number of items in one snapshot is the simple grid/data table. This manner of representation is considered to be user-friendly to most users accustomed to working with Word or Excel and is simple and easy to develop as well. For example, the following data table displays four out of the six recommended sets of KPIs and provides an "at a glance view" of the: case counts (pending cases, incoming cases, resolved cases), backlog analysis (pending on 31 December, pending over two years) clearance rate and calculated disposition time (CEPEJ-SATURN n.d.).[5]

Type of cases	Pending cases on 1.1	Incoming cases	Resolved Cases	Pending cases		Clearance Rate (CR - %)	Disposition Time (DT - days)
				On 31.12	> 2 years		
Civil cases	**15 619**	**4 127**	**4 121**	**15 625**	**NA**	**100%**	**1 384**
Civil 1st instance	14 288	3 172	2 887	14 573	NA	91%	1 842
Non-contested	478	911	680	709	NA	75%	381
Inheritances	853	44	554	343	NA	1259%	226
Administrative cases	**1 947**	**1 720**	**1 107**	**2 560**	**NA**	**64%**	**844**
Commercial disputes	**301**	**766**	**431**	**636**	**NA**	**56%**	**539**
Criminal cases	**34 256**	**88 002**	**70 250**	**52 008**	**NA**	**80%**	**270**
Criminal - General division	5 719	4 283	1 462	8 540	NA	34%	2 132
Criminal - Serious crimes	2 332	1 158	578	2 912	NA	50%	1 839
Minor offences	26 205	82 561	68 210	40 556	NA	83%	217
Total [Year]	**52 123**	**94 615**	**75 909**	**70 829**	**NA**	**80%**	**341**

The above table also illustrates a correct use of "semantic colours" that have associated meaning such as green for positive values/trends; light blue and grey to represent neutral or less important information (for example, information that was not available – NA); and reddish shades to represent negative values/trends. Additionally, it is noted that the orange colour is traditionally used to represent the mean or the median value. All of these contrasting colours aim to improve the understanding of the data and successfully focus the attention of the viewer on the relevant information.

Aside from the grid/data table, there are three chart types that are the most commonly used for comparison between different values. These charts are the horizontal bar chart, the column chart (including the column overlap chart) and the line chart. For example, the bar/column charts are commonly used to visualise the comparison of case counts (the number of incoming, pending and resolved cases) by case type. The line chart also serves as a comparison tool but is designed to display values over a period of time (for example, the number of incoming cases per month over a period of one year).

For the purpose of visualising the composition of variables as parts of a whole, the most commonly used chart types are the stacked column/bar chart, the pie chart (or donut chart), and the waterfall chart. For example, these types of charts are suited to visualising the segmentation of the resolved cases by the manner in which they were disposed of (or by their age at disposition); these charts can also visualise the composition of the inventory of pending cases (divided into old cases and incoming cases). As for the pie charts, it is generally recommended to reserve them for visualising two to five groups of variables, because they could be considered difficult to read if they include too many components. Another reason is that presenting the data labels in a circular shape can make it hard to differentiate the values when they come to angles (even though data labels can by displayed in a text bubble outside the chart itself) (Bakusevych 2018). All of the above-mentioned charts (and more) will be illustrated in the next sub-chapters.

[5] The original design also included "median number of judge positions (FTE) per case type" as well as the number of incoming, pending and resolved cases per a single judge position. However these KPIs were not available.

To sum up the principles discussed in this sub-chapter, and to illustrate the use of some of the special features in court management dashboards, one out of the five dashboards that the Slovenian judiciary has designed as part of its dashboards system is presented and analysed below.[6]

[6]The CEPEJ wishes to extend its sincere gratitude and appreciation for the kind assistance and significant contribution of the officials in the Slovenian judiciary to this handbook, including: the Secretary General of the Supreme Court, Mr Rado Brezovar; the head of the Judicial Data Warehouse project, Ms Mateja Lozej; the head of the Office for Court Management Development in the Supreme Court, Mr Jaša Vrabec; and the economist and analyst, Ms Maja Velikajne.

Predsednikova plošča 1 SODISCE

VRHOVNO SODIŠČE | VIŠJE SODIŠČE | District Courts | OKRAJNO SODIŠČE | UPRAVNO SODIŠČE | VIŠJE DELOVNO IN SOCIALNO SODIŠČE | DELOVNO IN SOCIALNO SODIŠČE | CoVL | PgP

SODSTVO REPUBLIKE SLOVENIJE
30.11.2020 11:48:33

2018 | 2019 | 2020

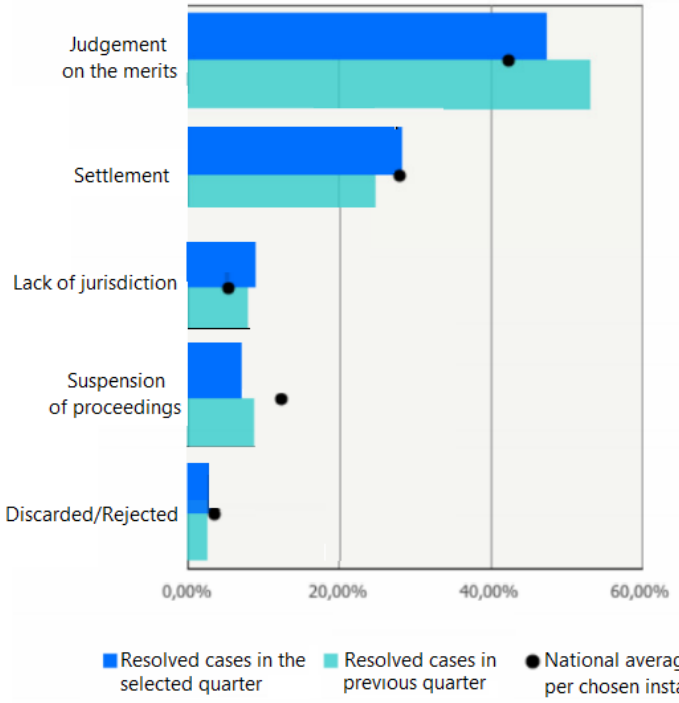
Selected court: OZ v Kopru

Po organizaciji

Staffing | Caseload | Backlog | Productivity | **Quality**

Quarter (All) **Case category** Require Judgments **Legal field** Civil - litigious

Segmentation by manner of dispositon



Stracture of caseload

Average duration of proceedings in resolvd cases

Case type	Selected court	Court instance	Filing date	Remand date
P	26,8	20,4	29,9	25,3

Calculated Disposition Time

Case type	Selected court	Court Instance
P	38,5	27,1

Average age of ongoing proceedings

Case type	Selected court	Court Instance	Filing date	Remand date
P	0,0	0,0	0,0	0,0

Clearance Rate

Case type	Selected court	Court Instance
P	1,06	1,06

Legal remedies or Appeals

Remedy type	Case type	Number of filing	Trend	privious year
Appeal	P	88	→	72

Average time of decision making

Case type	Selected court	Court Instance
P	16,9	11,1

The above dashboard uses a horizontal filtering toolbar that allows the users a very detailed and tailor-suited selection of the instance (nine options from which the regional courts were chosen), the year (three options from which 2020 were chosen), the choice of specific court (OZ v. Kopru), the dashboard type (five options from which the quality dashboard was chosen), the quarter of the year (first, second, third, fourth or all quarters = annual time period), the case category (differentiating between “cases that require judgments” and “other cases”) and the legal field (civil-litigious).

As you can see, the left half of the screen, which the eye automatically goes to, prioritised the display of the segmentation of the resolved cases by the manner in which they were disposed (five manners). The type of visualisation is a combination of the horizontal bar chart with markers (black dots). The bars compare between the resolved cases in the selected time period (2020) and the resolved cases in the corresponding previous time period (2019) at the level of the selected court. The black dots however represent the national average of resolved cases per manner of disposition at the level of the court instance. To avoid crowding the chart with data labels, the designers opted to use a special feature called tooltips. The tooltips feature allows the data labels to appear when the users hover over the data points using the computer mouse, thus freeing up the chart space.

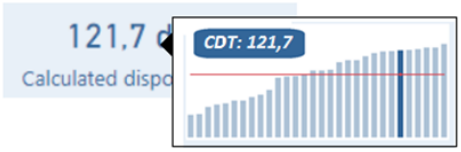
On the right side of the screen there are six aligned building blocks of tables displaying corresponding and complementing sets of KPIs side by side. All tables display a comparison between the values of the selected court with those of the instance that the court belongs to. As for the colour scheme, when the values of the selected court are higher or lower than that of the instance (above 5% higher, or lower than 5% below), they are coloured in red to represent a negative value or in green to represent a positive value. The yellow colour (and the orange colour of the arrow in the left table) is a mid-tone chosen to represent values ranging from 1-5% higher or lower than the value of the instance.

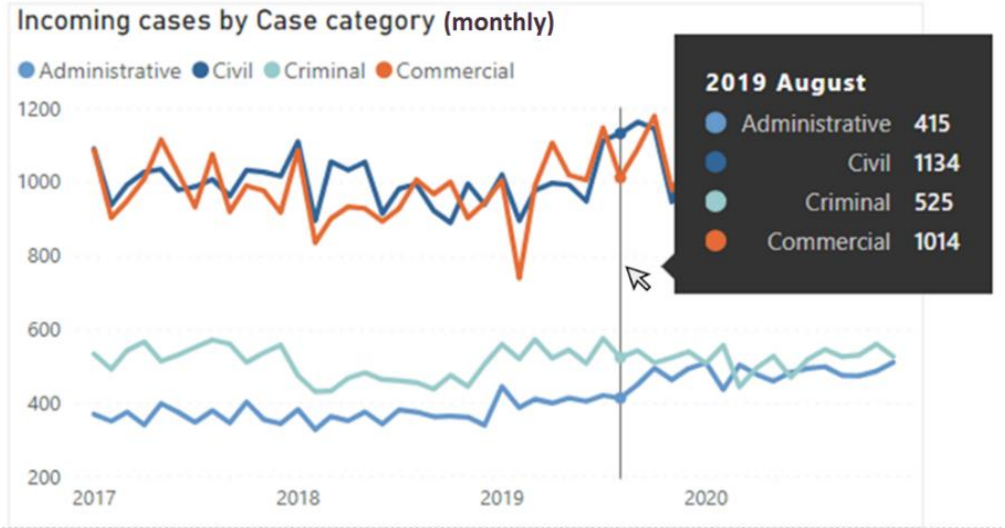
Another special feature is the option of downloading the dashboard data or generating a report based on the dashboard by exporting the data to a PDF file or into Excel format. These options can be accessed by clicking on the download icon or the export icon as displayed below.

To complete the portrait, the examples below illustrate some of the possible uses of the aforementioned tooltips and provide a better understanding of this feature.

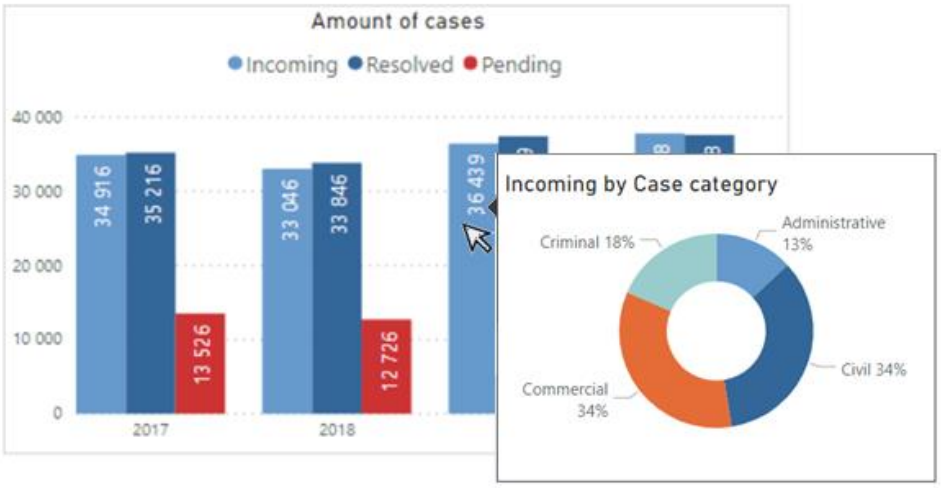
Data labels

Ranking (and average)





Additional detail



C. Court-level template dashboards

In this chapter you will find six examples of different court-level dashboards designed according to the principles laid out in the previous chapters. The design for these court-level dashboards and of the judge-level dashboards (which will be displayed in the next chapter) is meant to serve only as a possible source to draw inspiration from and should not be considered as a "one dashboard fits all". In this respect, judicial authorities seeking to develop a dashboard system are encouraged to review these templates as a general framework of ideas that can be applied as is, as well as be changed to include other sets of KPIs (for example, KPIs that are not related to the management of judicial work time), display a different composition and layout using different types of charts and using different data filtering to allow a higher or lower level of detail.

The dashboards presented in this chapter include five court-level dashboards and one dashboard that provides a national overview of selected sets of KPIs (recommended and additional or optional sets of KPIs). These examples demonstrate different levels of detail and perspectives that may be applied, such as: single court display vs multiple courts display; aggregated sum of all case categories data or an individual comparison displayed side by side; general overview of different aspects or focusing in detail on a specific issue. These template dashboards include:

- an overall court performance dashboard – providing an aggregated display of all case categories (with a filter option to review the data by an individual case category);
- incoming and pending cases in multiple case categories;
- resolved cases comparison between different case categories;
- focus on an individual case category;
- timeframe comparison between multiple case categories;
- national overview.

All of these judge-level dashboards use a consistent structure and colour choice and present several possible ways to display the data using different types of charts and tables.

An annual display is used as a default choice in each template; nevertheless the filtering toolbar in each dashboard allows the user to filter the dashboard by month and quarter as well.

C.1 Overall court performance

The overall court performance dashboard provides a general overview of five of the six recommended KPIs in one screen. This dashboard views the performance of the entire court from a “top-level” perspective and lays a foundation for the following dashboards that will dive into detail.

Level of detail:

The upper filtering bar allows the users to select the court (a specific court or all courts of the same instance) and the case category they want to view (such as administrative, civil, commercial, criminal or all in sum). The data are presented over a period covering the last four years (2017-2020).

Content, visual representation and layout:

The upper-left building block uses a bar chart to visualise the annual case counts of incoming, resolved and pending cases.

The upper-middle building block displays the clearance rate over time with the threshold value set at 100% as default. This visual point of reference allows the user to quickly spot a sub-optimal clearance rate and draw the relevant conclusions. In this respect, the threshold value is optional and could be changed to any other set goal (including the national average).

The upper-right building block displays the trends in the annual number of pending cases (year-over-year changes) using a column chart. Labels are displayed with absolute as well as relative (%) values to provide both perspectives.

The bottom-left building block displays age of pending cases by predefined age group (such as pending less than six month, less than twelve months, more than thirty-six months). The age groups are visualised via stacked bars with relative values – representing the proportion (%) of individual age categories out of all pending cases.

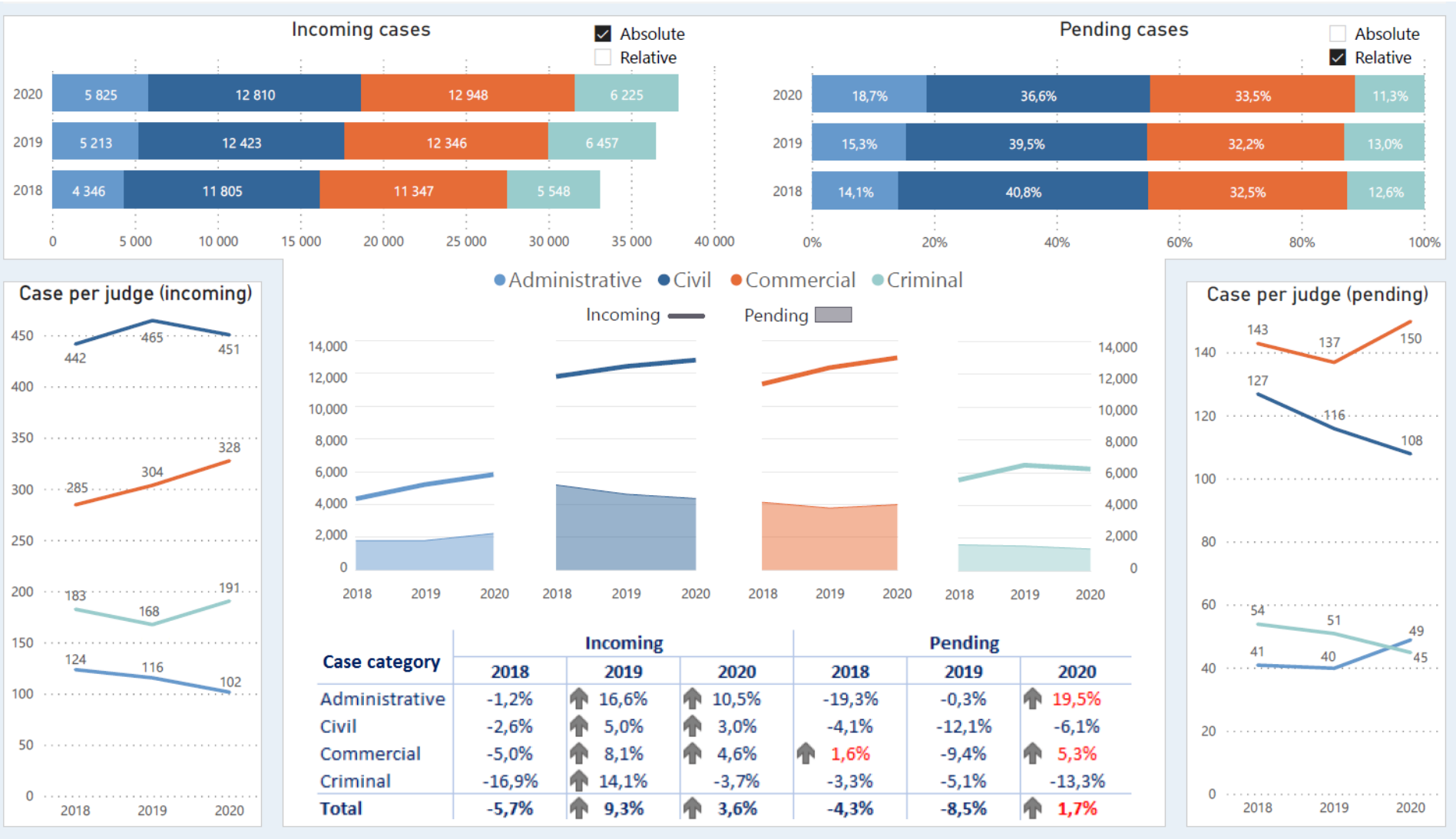
The bottom building block in the middle shows the calculated disposition time (CDT) as a trend over time while comparing the values of the selected court with the national average (that is, of all courts). Please note that the point of reference can be any goal value set by the court.

The bottom-right building block displays the average duration of proceedings divided into procedural stages (preparation, hearing and judgment stages). In this respect, judiciaries seeking to display the average for duration as a whole or feature other relevant stages (such as appeal or special recourse) can add this to the initial design.

Special features:

The dashboard uses interactive tooltips with additional information that appear when a user hovers the mouse cursor over a certain graph. For instance, the tooltips may display a breakdown of particular KPIs to compare between different case categories (for example, clearance rate displayed separately for administrative, civil, commercial and criminal cases). This general overview can also serve as an interactive selection menu in which clicking on individual elements (such as age of pending cases) will redirect the user to another dashboard page that elaborates on selected KPIs in further detail.

C.2 Incoming and pending cases in multiple case categories



Case category	Incoming			Pending		
	2018	2019	2020	2018	2019	2020
Administrative	-1,2%	16,6%	10,5%	-19,3%	-0,3%	19,5%
Civil	-2,6%	5,0%	3,0%	-4,1%	-12,1%	-6,1%
Commercial	-5,0%	8,1%	4,6%	1,6%	-9,4%	5,3%
Criminal	-16,9%	14,1%	-3,7%	-3,3%	-5,1%	-13,3%
Total	**-5,7%**	**9,3%**	**3,6%**	**-4,3%**	**-8,5%**	**1,7%**

The above dashboard (C.2) was originally designed to display the overall performance of multiple case categories. However, in the process of designing the dashboard, the limited space and the desire to display the data in detail resulted in a decision to divide the data between two dashboards. Therefore, dashboard C.2 focuses on incoming and pending cases, and the following dashboard (C.3) completes the portrait by displaying the KPIs regarding resolved cases.

Level of detail:

The dashboard displays yearly data of four case categories over a span of three years. The case categories are displayed in a custom, predefined order, which is kept consistently throughout all of the court-level dashboards presented here. Additionally, this template could also be used to display the case categories comparison at the national level (all courts).

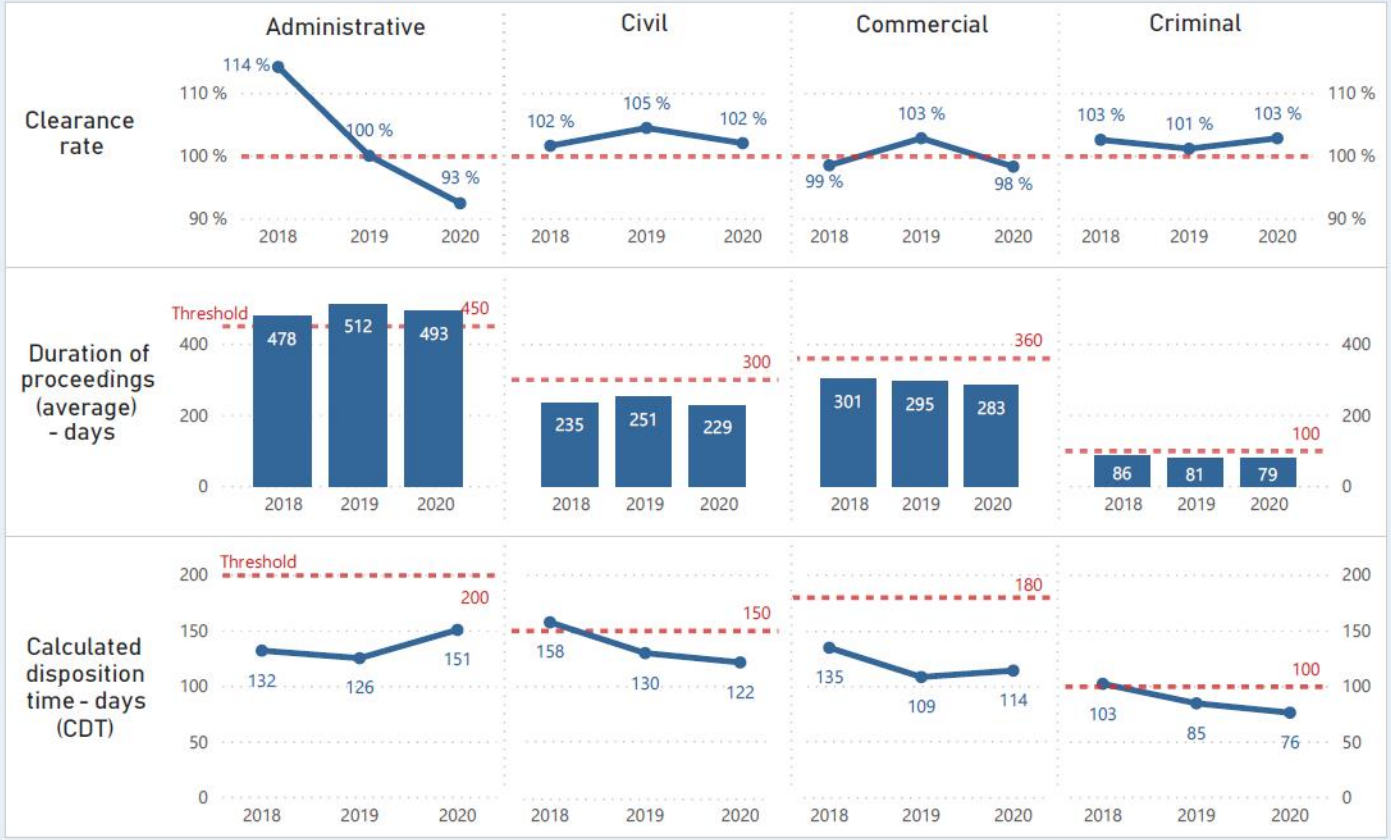
Content, visual representation and layout:

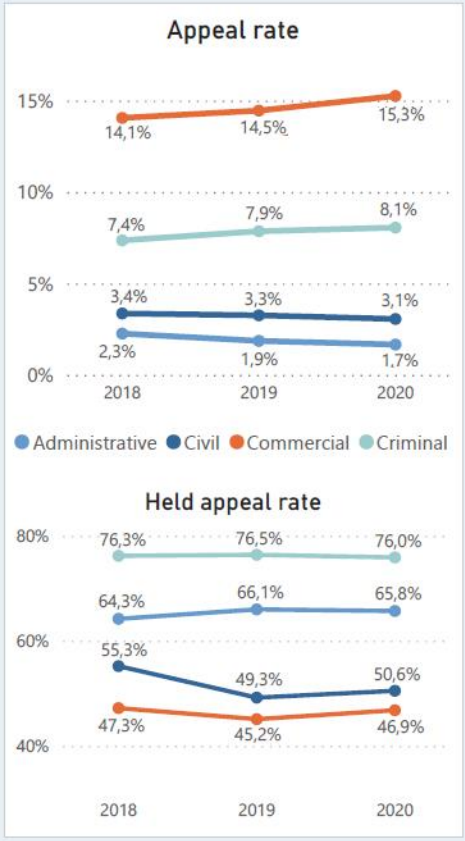
The top-left building block display the incoming cases and the top-right building block displays the pending cases. Both KPIs are displayed by individual case categories using a stacked bars chart. The user can switch between viewing absolute and relative (%) values – to see both perspectives. The middle building block consolidates the data on both KPIs into one chart using a combination of line chart and area chart.

The table in the bottom part of the dashboard displays the relative yearly changes in incoming and pending cases. An arrow symbol has been added to indicate an increase in the values. Additionally, a red colour is used to draw the attention of the user to an increase in pending cases.

The lower-left and right building blocks display the average number of incoming and pending cases per judge. These components were added to illustrate the possibility of incorporating other related (optional) KPIs that can provide further context.

C.3 Resolved cases comparison between different case categories





Case category	Clearance rate	*national avg.*	CDT	*national avg.*	Duration	*national avg.*	Held AR	*national avg.*
Administrative	93%	*99%*	151	*203*	493	*472*	65,8%	*57,3%*
Civil	102%	*103%*	122	*134*	229	*204*	50,6%	*51,9%*
Commercial	98%	*101%*	114	*161*	283	*273*	46,9%	*49,1%*
Criminal	103%	*105%*	76	*71*	79	*87*	76,0%	*67,7%*
All	**99%**	***102%***	**116**	***129***	**206**	***204***	**55,7%**	***53,5%***

Case category	Timeframe - months			
	A	B	C	D
Administrative	18	24	30	**36**
Civil	18	**24**	30	36
Commercial	18	24	**30**	36
Criminal	**12**	18	24	36

The above dashboard displays a resolved cases comparison between different case categories (C.3) to complement the previous comparison shown in dashboard C.2. The level of detail remains the same, displaying the KPI breakdown by case categories over a span of three years.

Content, visual representation and layout:

The upper-left building block contains a comparison of selected KPIs per each case category: the clearance rate (including a highlighted 100% threshold); the average total duration of proceedings; and the calculated disposition time (both of which include a highlighted custom threshold for each case category that each court system may set for itself).

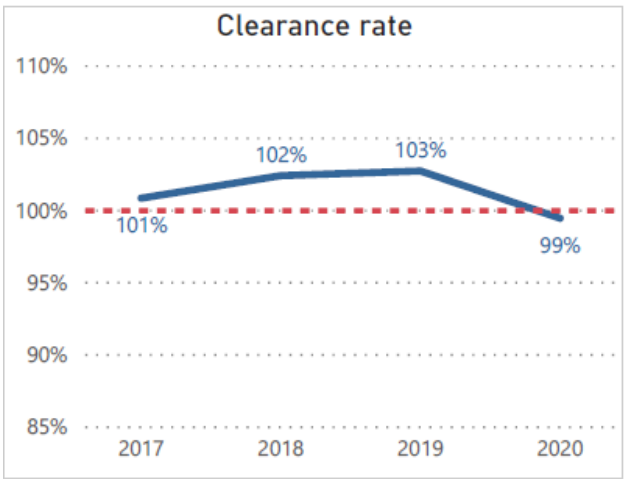
The upper building block on the right shows the appeal rate (proportion of the appealed cases out of the total resolved cases) and the held appeal rate (the proportion of appeal cases in which the appeal instance confirmed the first-instance decision). These two indicators were added to illustrate the possibility of including other relevant information and customising the dashboard to one's own needs. In line with previous comparisons, the graphs contrast the individual case categories.

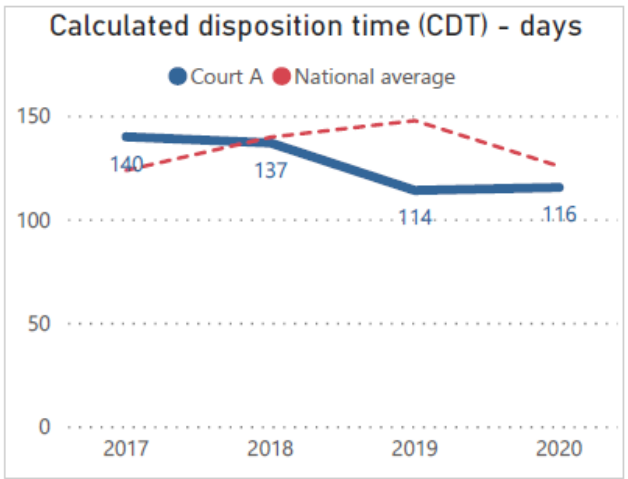
The bottom-left building block provides a table summary of current KPI levels and a national average (in grey) for comparison and context. A red colour is used to draw attention to potential problems in performance.

The bottom-right building block shows a table indicating the timeframe goal that the court achieved (highlighted in blue). The information is provided for each case category (based on the age of pending cases), displaying the label of the timeframe (A, B, C, D) as well as the matching timeframe set for each case category (in months).

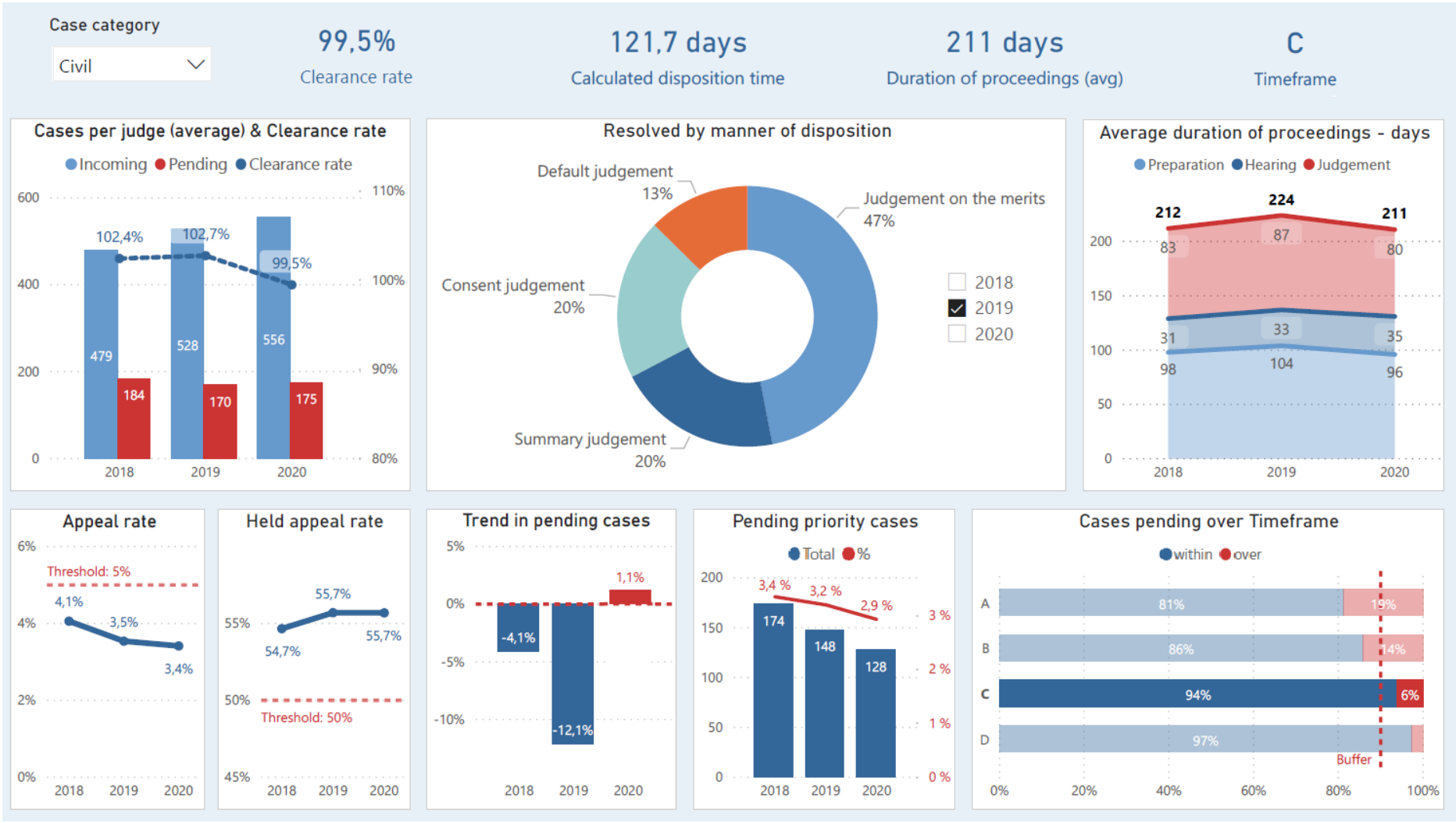
Adding benchmarks, average values and goals:

To provide additional context or a point of reference, KPIs in individual dashboard elements can be complemented with other values such as average values or goals. For example, a graph displaying calculated disposition time for a particular court can also feature an average value for all courts of the same type – to allow for a quick comparison of the court's performance against others. Alternatively, the graph may display a goal value set by the court – to monitor progress towards planned objectives. To give an example, a graph displaying a court's clearance rate can be enhanced by adding a benchmark line (such as 100%) so it is immediately recognisable which values are above or below the threshold and by how much.





C.4 Focus on an individual case category



In contrast to the previous dashboards, this dashboard (C.4) focuses in detail on a single case category (civil), providing the user with yet another (specific) level to observe. The advantage of this display is the ability to dive into detail and view specific elements that are more suitable to being displayed at the level of the individual case category instead of an aggregated display for all the case categories. For example, visualising the aggregated data on manners of disposition for the whole court could be problematic, as the list of manners of disposition differ among the different case categories. For this reason, it is more suitable to display this KPI set per each case category separately.

Content, visual representation and layout:

This dashboard is composed of several sets of KPIs. Therefore, to avoid a cumbersome and difficult-to-read display, the choice of visualisation and overall layout was kept simple enough. The top header includes a basic filtering toolbar (case categories filter) to highlight the current values of selected KPIs (clearance rate, average total duration of proceedings, calculated disposition time, timeframe).

The upper-left building block displays the incoming and pending cases per judge (average) together with clearance rate, by using a combination of column and a line chart. The case count may also be displayed as a total sum (instead of the average per judge).

The upper-centre building block displays a segmentation of the resolved cases by the manners in which they were disposed of. The visual may include other manners of disposition – the four common examples were chosen for illustrative purposes.

The upper-right block presents the average duration of proceedings displayed by intermediate stages and stacked on top of each other to show the total duration as well.

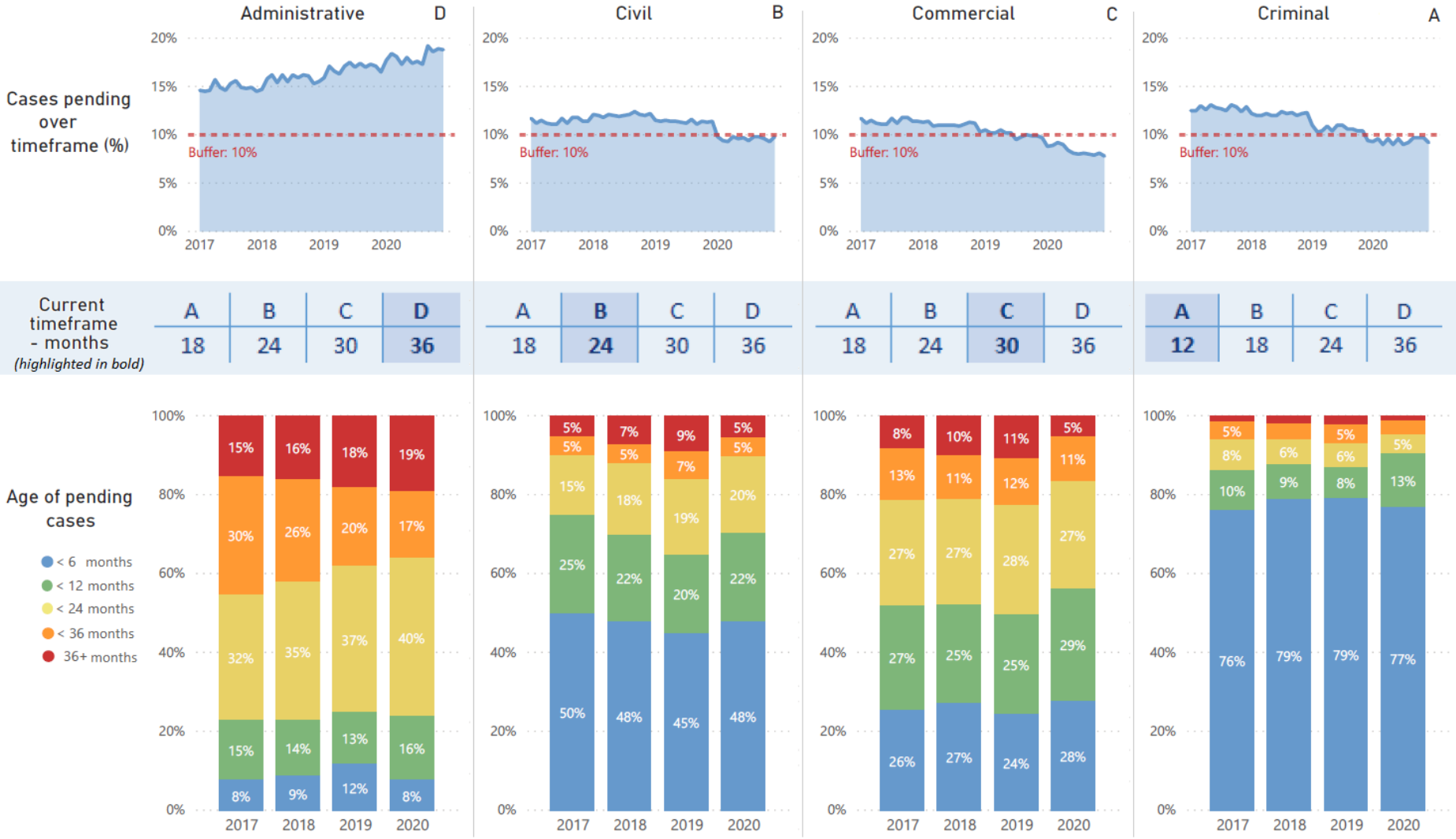
In the bottom-left corner, appeal rate and held appeal rate are complementing the set of recommended KPIs to illustrate the various customisation options available. The display may also include a national average or other custom value (threshold) for reference.

The bottom blocks in the centre display the trend in annual pending cases using a red colour to draw attention to negative trends (an increase in the number of pending cases from one year to the next).

The priority cases (displayed as absolute and relative values) were included to illustrate the ability to put additional emphasis on certain important aspects of the recommended KPIs.

The bottom-right building block concludes the dashboard with the percentage of cases pending within and over the timeframe. The information is displayed for all timeframes (A, B, C, D) while highlighting the timeframe the court currently achieved (C). A 10% buffer is included to take into account potentially complex cases that are difficult to resolve within the standard timeframe.

C.5 Timeframes comparison between multiple case categories



The above dashboard displays a comparison of timeframes by case categories (C.5), and demonstrates that apart from examining the performance via a set of various KPIs, users can also focus in detail on just one specific topic – in this case, age of pending cases (the nature of the data also favours this kind of separate elaboration via multiple graphs as it leaves little room for other indicators).

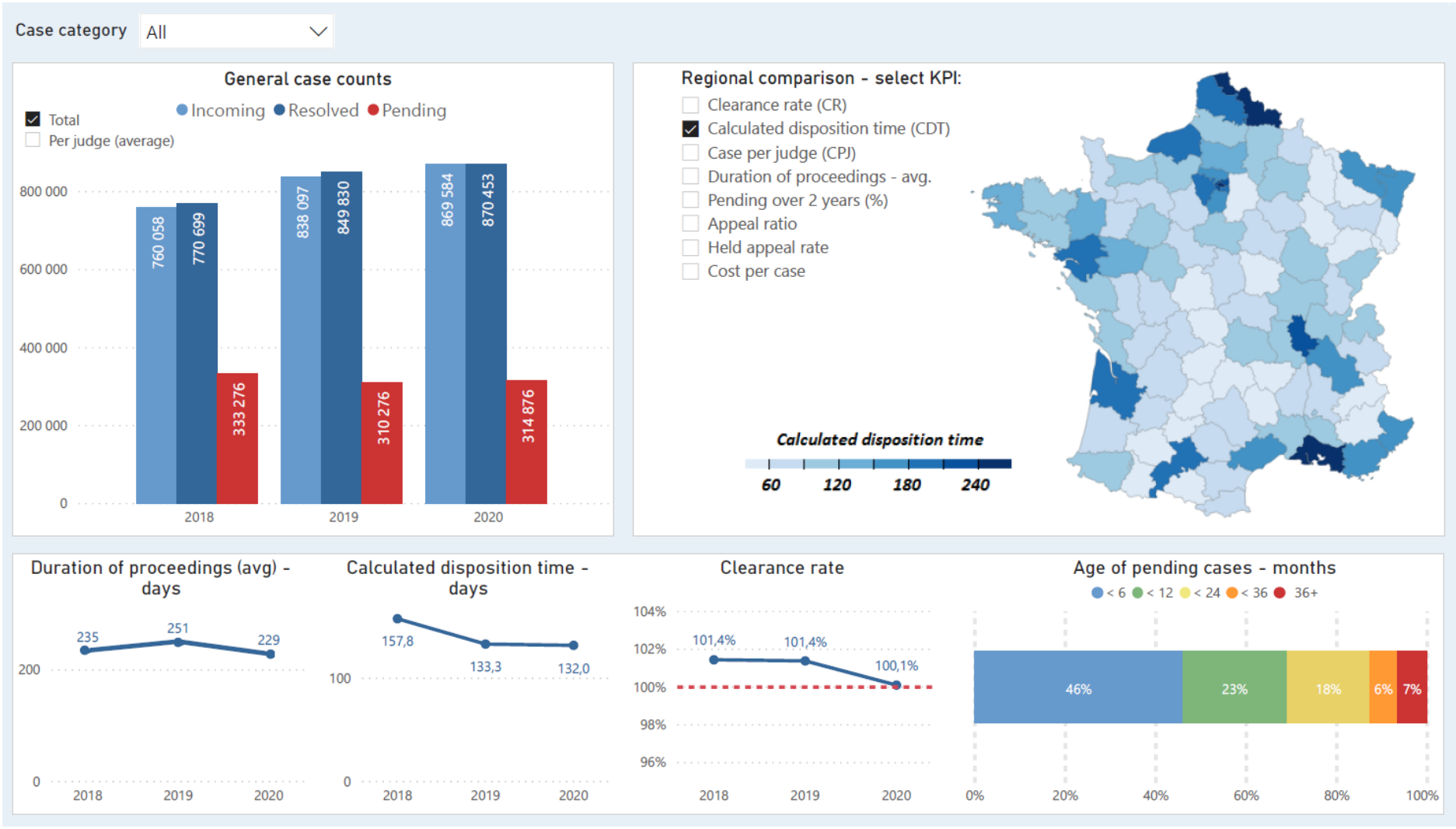
Content, visual representation and layout

The upper row in the screen shows the percentage of cases pending over the current timeframe separately for each case category – with a 10% buffer to take into account complex cases (the current timeframe is indicated in the top-right corner of each area graph). If the value is below the buffer line, the court has less than 10% of cases pending over the timeframe and therefore achieves the goal. Conversely, if the value is above the buffer line, the court has more than 10% of cases pending over the timeframe and therefore does not meet the respective goal. The area chart displays the value as a trend over time, which lets the reader see the court's chronological progress towards the set goal.

The middle row displays the current timeframe, which is highlighted in a darker blue colour and bold font. Apart from the label of the timeframe (A, B, C, D), the chart also shows the number of months (goal value) of all respective timeframes.

The lower part of the screen displays the age of pending cases by predefined age groups (trends over time) – using a stacked columns chart with the relative values (%) of the individual age categories. The age groups may of course be modified to fit one's own purposes and data structure.

C.6 National overview



The National overview dashboard (C.6) displays the aggregated performance of all courts in the country. In addition, it uses a map to contrast the KPI values in different regions. The dashboard contains aggregated yearly data representing the sum of all courts for all or only a specific case category (to be selected via filter in the top left corner).

Content, visual representation and layout

The upper-left building block displays the comparison of the incoming, resolved and pending case counts with a filtering option to view the data "per judge (average)".

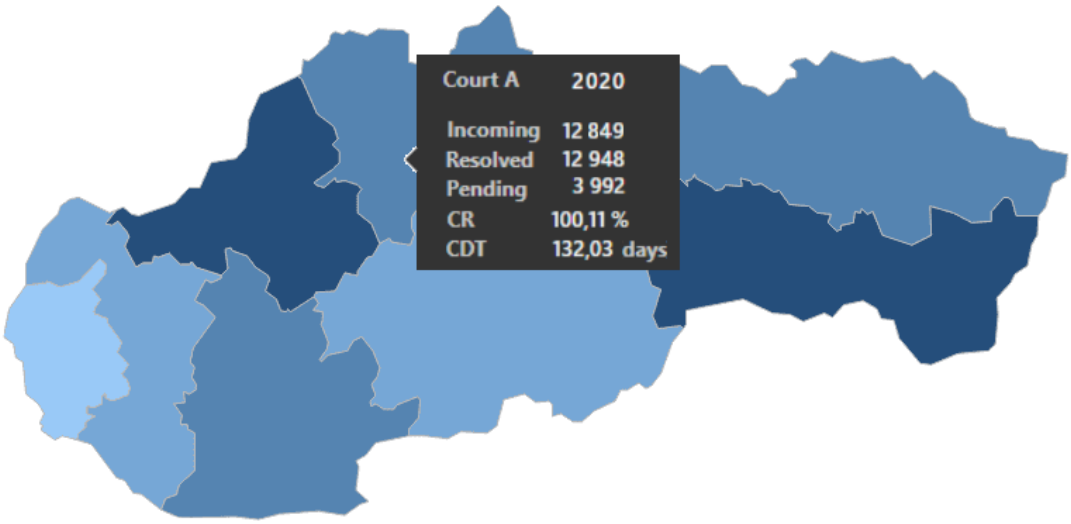
The upper-right building block features an interactive map of a country, displaying a comparison of values across different courts represented by geographical areas (regions/districts). A colour scale is used to distinguish the values and a filter with various options is provided so the user can select which KPI will be visualised on the map. The values of individual courts (areas) are represented by a colour scale provided next to the map. The exact numerical values may also be viewed using tooltips (hovering the computer mouse over any geographical area to activate the tooltip).

The bottom building block displays the recommended KPIs already described in previous dashboards. The bottom-left building block displays the total (average) duration of proceedings, followed by calculated disposition time and clearance rate – as a trend over time. The bottom-right building block displays the current age of pending cases by predefined age groups using a chart of stacked bars with relative values – representing the proportion (%) of individual age categories out of all pending cases.

Special features

The map may also be used as a filter. For example, when a user clicks on a specific geographical area (court jurisdiction), the remaining KPIs in the dashboard will then show only the values for the corresponding court – allowing the user to compare performance and browse through different courts simply by selecting from the map. However, since there may be multiple courts located in one district/region, this functionality might require filtering a particular instance or an individual court, so there are no overlapping jurisdictions (each area corresponding to a particular or unique court). Similarly, a brief overview of the KPIs of an individual court can also be included in a tooltip that appears when a user hovers the mouse cursor over a certain geographical area.

KPI overview tooltip



D. Judge-level template dashboards

In principle, all six templates of the court-level dashboards presented in the previous chapter may also serve as judge-level dashboards simply by adding a filter value of the judge's name to the filtering toolbar of each dashboard.

With that said, it is important to remember that the data of the entire court (or the entire courts system) are displayed in the dashboards by grouping different case types into a minimal list of categories (list of legal fields, case categories or complexity levels). For example, if the individual court handles 114 different case types,

these case types will be grouped into a list of civil, criminal, administrative and commercial categories and visualised under these four categories. This grouping of hundreds of different case types into a short list of categories enables their visualisation in one screen. In other words, the limited space of the dashboard cannot effectively and successfully visualise data on the single case type at the level of the entire court.

However, at the level of the individual judge, the dashboards can easily dive into detail per case type because the individual judge usually handles a small number of case types that seamlessly fit on one screen.

Accordingly, the design of the judge-level dashboards will showcase this higher level of detail in the content, and provide different design choices for the recommended sets of KPIs alongside “a taste” of additional and unique sets of KPIs that can enrich the portrait of data.

To ease possible fears of “the unknown”, it should be highlighted that the design is meant for the eyes and use of the individual judge, and seek only to provide the judge with tools to better manage their work time and consequently better handle his or her case-related workload.

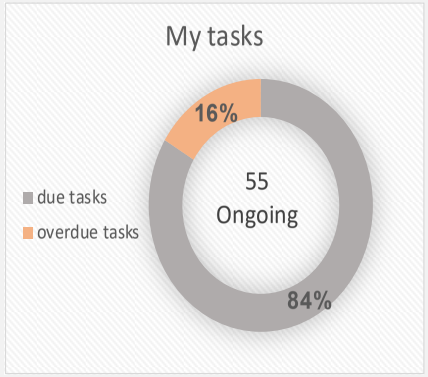
Respectively, this chapter will present and discuss the following four judge-level dashboard templates:

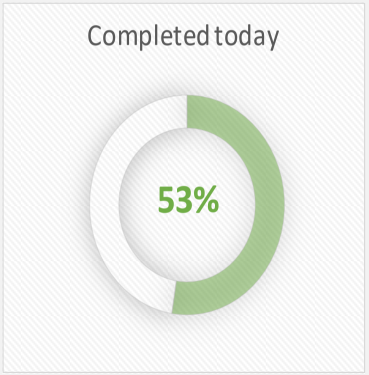
- The electronic task board of the judge
- The case counts and CR dashboard
- The pending cases dashboard (along with a template design for a complementing CMS report)
- The resolved cases dashboard

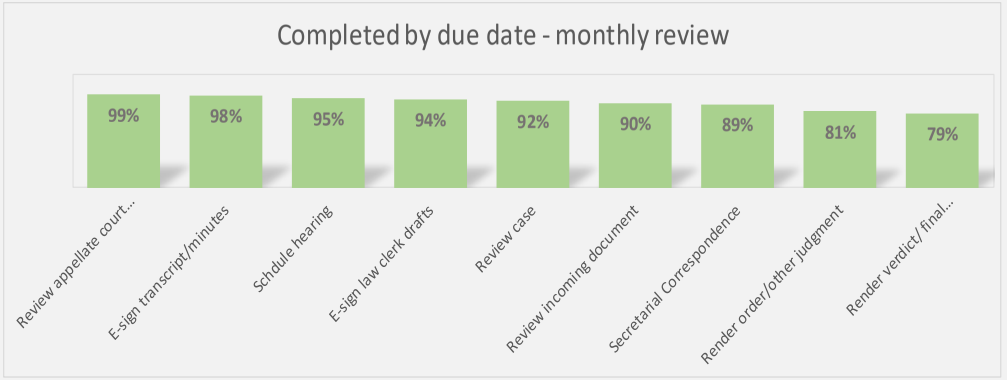
Please note that aside from the electronic task board that provides a daily and monthly review of the data, the default choice for all the other dashboards is an annual review of the data. Naturally, this default choice can easily change by filtering the data by month, quarter or year.

As mentioned in the introduction to the court-level dashboards, the presented concept should be taken as “food for thought” and each judiciary is encouraged to add to this general framework of ideas and tailor it to its specific requirements and unique needs.

D.1 Electronic task board







Search
ongoing tasks
completed tasks

End date
Today - default choice
Start date
3 months prior to end date
***

Color legend

gray	due task
red	overdue task
bold	**unread**

My tasks	
Approve and e-sign transcript/minutes	**7**
Schdule hearing	4
Review secretarial Correspondence	1
Approve and e-sign law clerk drafts	5
Review incoming document	17
Review decision of the appellate court	1
Review case	5
Render order/other judgment	12
Render verdict/ final judgment	3
Tasks (total)	**55**
Overdue tasks	9

Clerk tasks	31

Case number	Case type	Parties	Start date	Due date	Last activity in e-file	Case assignment	Case status
237-10-18	**CrC**	**Kennedy vs. Norton**	**09/02/2021**	**10/02/2021**	**09/02/2021**	**01/10/2018**	**pending**
111-06-20	**CrC**	**Yuen vs. Kimmelman**	**09/02/2021**	**10/02/2021**	**09/02/2021**	**10/06/2020**	**pending**
524-01-20	CrC	Douglas Watts vs. Mendoza	09/02/2021	10/02/2021	09/02/2021	12/01/2020	pending
284-11-19	CrC	Watters vs. McDonald	09/02/2021	10/02/2021	09/02/2021	30/11/2019	pending
123-03-20	**CrC**	**Spears vs. Reyna**	**08/02/2021**	**09/02/2021**	**08/02/2021**	**02/03/2020**	**pending**
456-02-20	**CrC**	**Kennedy vs. Brown**	**08/02/2021**	**09/02/2021**	**08/02/2021**	**28/02/2020**	**pending**
789-10-20	CrC	Cooper vs. Connell	08/02/2021	09/02/2021	08/02/2021	27/10/2020	pending
Clik to link the e-fille in the CMS			day- month- year format				

The above dashboard presents and analyses the electronic task board of the judge. This electronic task board stores information on various tasks in one location, so they are easier to manage, prioritise, monitor and streamline and facilitate the optimisation of the judge's time. This dashboard is interfaced with the case-management system and allows the judge to also view the task basket of his or her law clerk to advance collaboration, co-ordination and delegation of work.

Layout, types of visualisation and colour choice

This dashboard includes five building blocks presented in two rows. The upper row reviews the judge's task basket as a whole by visualising it through two pie charts and a third column chart. The first pie chart displays the portion of overdue tasks (16%) out of the total number of ongoing tasks (55). The choice of colours in this chart draws the attention to the overdue tasks, thus guiding the judge to minimise their portion as much as possible and incentivising them to complete as many of the tasks as possible within their goal timeframe. The second chart is a circular progress bar that presents the proportion of tasks that the judge has completed today as a means of monitoring progress and as a tool for empowerment and ownership. In this respect, the green colour positively focuses on the completion rate, without setting the prevailing goal of 100%. This is because this goal can rarely be reached in certain types of tasks. For example, when the judge is assigned an e-task to "render a final judgment" in a given case, the assignment day may be the day that both parties submitted their written summations in the case. However, the deadline for the completion of this task will not be on the same day, but 30 or more days later. For this reason, some of the tasks will remain in the e-basket for more than one day and preclude the possibility of a full completion daily rate. The top-right building block is in a column chart that segments the e-basket by the type of task (nine types in total) and provides a monthly review of the tasks that were completed within their set time frame. This chart highlights the goal achievements and leads to continuous improvement and better planning with regard to tasks with relatively lower completion rates.

The second row of the e-board is composed of two tables. The first table counts the number of ongoing tasks by their type. This table sorts the tasks from least to most time-consuming (due date minus start date). In this respect, it is crucial that the types of tasks and their assigned time frame will be determined in full collaboration and co-ordination with the judges themselves, and will be based on a study of the complexity of each type of task in each case type. The second table is accessed by clicking on a chosen task type in the first table, thus displaying the full details of each task classified under the chosen task in a summary data table. As a default choice, this summary table is sorted by the start date of the task (new to old) with indication for overdue tasks that are coloured in red to draw attention to them and encourage the judge to prioritise their completion. The level of detail in the summary table is dictated by the level of detail and accuracy of the CMS and may include the case number and parties, the start and due date of the task, the last recorded e-activity in the case, the case assignment day and status. The case number acts as a hyperlink that will redirect the judge to the electronic file in the CMS to complete the task.

D.2 Case counts and CR dashboard

First section

Incoming		Trend
2018	179	▼
2019	170	▼
2020	162	

Resolved cases		Trend
2018	150	▲
2019	159	▼
2020	155	

Second section

Weighted caseload target ≤ 1260 h

Assigned weighted caseload = 1362.29 h

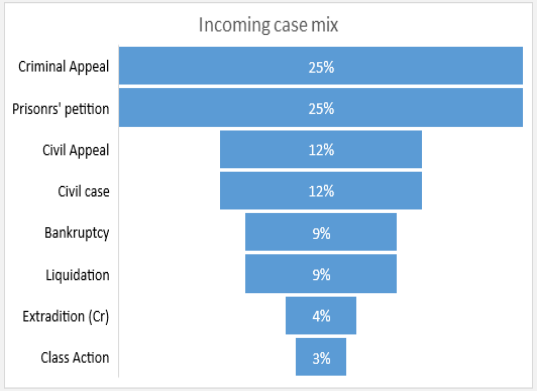
8% overload

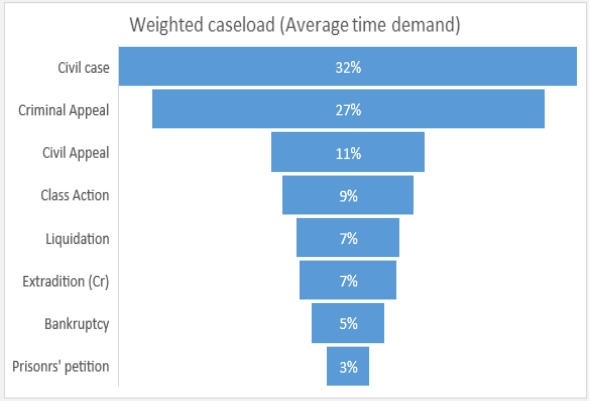
Clearance rate (CR)		Trend
2018	84%	▲
2019	94%	▲
2020	96%	

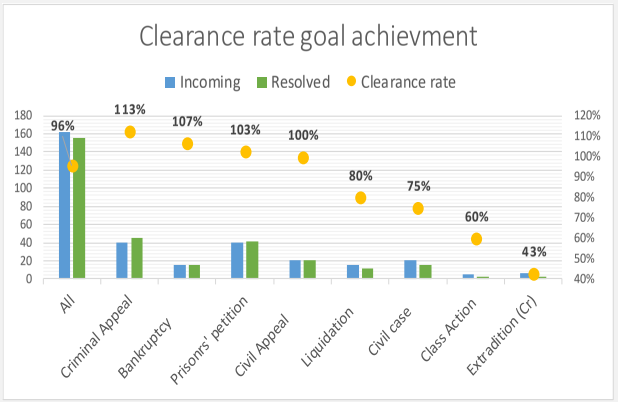
Third section

CR Goal ≥ 100%

case count	proportion
122 ≥ 100% CR	79%
33 < 100% CR	21%







Case type	Incoming	Proportion
Criminal Appeal	40	25%
Prisoners' petition	40	25%
Civil appeal	20	12%
Civil case	20	12%
Bankruptcy	15	9%
Liquidation	15	9%
Extradition (Cr)	7	4%
Class Action	5	3%
Total	162	100%

Case type	Incoming	Caseweight (h)	Weighted caseload	Average time demand
Civil case	20	21.47	429.4	32%
Criminal Appeal	40	9.19	367.6	27%
Civil appeal	20	7.19	143.8	11%
Class Action	5	24.58	122.9	9%
Liquidation	15	6.49	97.35	7%
Extradition (Cr)	7	13.07	91.49	7%
Bankruptcy	15	4.57	68.55	5%
Prisoners' petition	40	1.03	41.2	3%
Total	162		**1362.29**	100%

Case type	Pending	Incoming	Resolved	CR = Resolved / Incoming
All	74	162	155	**96%**
Criminal Appeal	11	40	45	113%
Bankruptcy	25	15	16	107%
Prisoners' petition	3	40	41	103%
Civil appeal	5	20	20	100%
Liquidation	15	15	12	80%
Civil case	7	20	15	75%
Class Action	2	5	3	60%
Extradition (Cr)	6	7	3	43%

The caseload and clearance rate (CR) dashboard can provide a monthly, quarterly or yearly review of the following sets of KPIs (the above example is of a yearly review).

1) The incoming caseload of the judge – a basic case count of the incoming cases divided by case type and by the portion that each case type takes up in the overall case mix of the individual judge (see first section of the dashboard).

2) The weighted caseload of the judge – this result is achieved by multiplying the number of incoming cases of each case type by the weight assigned to that case type. The result of this calculation is the weighted caseload of the judge, that is, an assessment of the required judicial work-time demand in order to process and resolve all incoming cases. This individual weighted caseload (1 362 hours in this example) is then compared to the goal value (1 260 hours in this example) to assess the ability of the judge to handle his or her assigned workload (see middle section of the dashboard).

3) The clearance rate of the judge – the clearance rate is achieved by dividing the number of resolved cases by the number of incoming cases in a given period (annual, in this example).

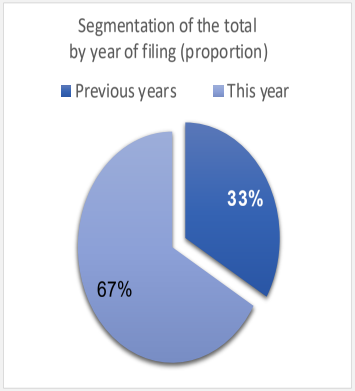
Layout, types of visualisation and colour choice

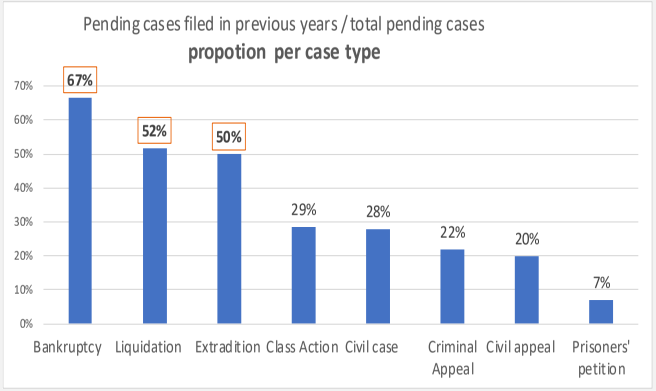
The dashboard is divided into three columns and three rows. Each column includes an upper building block of text boxes, a middle building block of a chart and a last building block containing a data table. As mentioned above, each column displays a different set of KPIs, and the “mix of incoming cases” and the “weighted caseload” are linked and therefore displayed one next to the other in two funnel charts. This horizontal layout creates a natural flow and allows for an easy comparison between the case type that takes up the biggest portion of the case mix of the judge (criminal appeal) to the case type that demands the biggest portion of the judge’s work time (civil cases). The two text boxes above the case mix summarise the case count of incoming and resolved cases in the past three years, using an arrow shape to visualise an increase or a decrease in the annual number of cases and a green or red colour to represent a positive or a negative trend. The data tables complete the picture by providing the actual case count that yielded the case mix, and the weight of each case type yielding the overall weighted caseload. In addition, the text box above the weighted caseload provides the bottom line showing that the judge was assigned an annual case mix that resulted in an overload of 8% above the target.

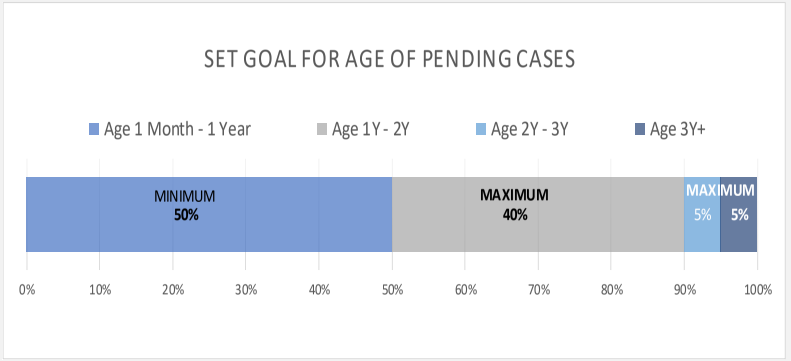
The CR section of the dashboard reviews the CR results in the past three years, displays the CR goal, which is set at 100% and above, and comperes it to the goal achievement at the level of the entire incoming cases caseload (79% of the incoming caseload in 2020 reached the goal). The middle building block displays the CR per each case type in a combo chart (CR results are visualised in a scatter chart and the CR formula components are visualised in a column chart). The bottom building block contains the table with the raw data along with the addition of the pending cases count, which leads us onto the next dashboard.

D.3 Pending cases dashboard

Total number of pending cases	=	Pending cases filed in previous years	+	Pending cases filed this year
229		75		149







Inventory per age group	1 month - 1 year	1 year - 2 years	2 yeare - 3 years	3 years and above
Set goal	50% - 100%	1% - 40%	1% - 5%	1% - 5%
Achieved goal (Proportion)	65%	24%	5%	6%
Achieved goal (Number)	149	55	12	13

Case type	Total of pending cases	Pending cases initiated in previous years	Initiated in previous years / total of pending	Initiated this year / total of pending	Resolved cases	CR = resolved cases/ incoming cases	Case turnover ratio = resolved cases / pending cases
Bankruptcy	39	26	67%	33%	16	107%	41%
Liquidation	29	15	52%	48%	12	80%	41%
Extradition	12	6	50%	50%	3	43%	25%
Class Action	7	2	29%	71%	3	60%	43%
Civil case	25	7	28%	72%	15	75%	60%
Criminal Appeal	50	11	22%	78%	45	113%	90%
Civil appeal	25	5	20%	80%	20	100%	80%
Prisoners' petition	42	3	7%	93%	41	103%	98%
Total of pending cases	229	75			155		

Case type	AGE 1M > 1Y	AGE 1Y > 2Y	AGE 2Y > 3Y	AGE 3Y +
Bankruptcy	15	12	3	7
Civil appeal	20	3	2	0
Civil case	17	4	2	1
Class Action	5	7	1	0
Criminal Appeal	40	9	3	0
Extradition (Cr)	7	7	1	1
Liquidation	15	10	0	4
Prisonrs' petition	30	3	0	0
Total	149	55	12	13
				-1

The pending cases dashboard displays the age and status of all unresolved cases. This inventory of pending cases includes cases that were filed in the current year and are yet to be resolved as well as cases that were filed in the previous years and are still unresolved. The above template illustrates a dashboard that was generated on 31 December 2020 and presents the annual data for the year 2020. Naturally, the same dashboard can present the data on a monthly or quarterly basis.

Layout, types of visualisation and colour choice

This dashboard contains three text boxes, three charts and three data tables. The text boxes display the total number of pending cases (229) and break it down into cases that were initiated in previous years and are not yet resolved (75) and to the incoming cases that are still unresolved (149). The pie chart underneath it visualises the same figures in proportion values. In this respect, the proportion of pending cases initiated in previous years out of the total (33%) can serve as a possible bar that the proportion per case type can be measured against. The column chart next to it, displays the proportion per case type from highest to lowest, making it easy to track the values higher than 33% (which are framed in orange borders). The table below contains the raw data along with an interesting comparison between the clearance rate (resolved/incoming) and the case turnover ratio (resolved/total pending).

The last chart is a bar chart that displays the set goal for the proportion of cases per age group. Respectively, the first table underneath the column chart indicates that the set goal was reached in the first, second and third age groups. For example, all 149 cases that were filed this year and were still pending on 31 December 2020 are grouped under the first age group (age one month to one year). In this respect, it should be explained that if we generated the same dashboard in June 2020, it is clear that the first age group would also include cases that were filed between July 2019 and December 2019 because their age would fall into the age group of one month to one year from filing. As for the fourth age group, it can be noticed that it has exceeded the maximum proportion set for it (above the maximum 5%).[7] Respectively, the bottom-right table lists the pending cases by case type and age group, indicating that the set goal can be reached by resolving one of the cases in the fourth age group (the value -1 is indicated in red in the last cell in the table).

To complete the portrait, the CMS can create a report of the pending cases by age group with recommended criteria to assist the judge with the decision on which of the 13 pending cases in the fourth age group should be prioritised. An example for such a report, and the application of such relevant criteria is presented on the next page.

7 In this respect, it is important to note that the values can of course change if and when the number of incoming cases rise in a substantial way.

CMS template report on pending cases

Search	1 month - 1 year
Age Group	1 year - 2 years
Case type	2 years - 3 years
	3 years and above

Recommended priority to resolve
1. Last activity - Final judgment
2. case type with high ratio of old cases
3. Year of filling - Oldest to newest
4. Date of last activity - Oldest to newest

Num	Case type	Docket number	Date of activity	Last activity	Case weight
1	Bankruptcy	237-10-16	01/02/2021	secretarial corresp	4.57
2	Bankruptcy	111-06-16	11/11/2020	incoming document	4.57
3	Bankruptcy	524-01-15	01/09/2020	non-final judgment	4.57
4	Bankruptcy	284-11-16	21/07/2020	non-final judgment	4.57
5	Bankruptcy	123-03-16	15/09/2020	court hearing	4.57
6	Bankruptcy	456-02-15	28/12/2020	incoming document	4.57
7	Bankruptcy	789-10-16	15/11/2020	court hearing	4.57
8	Civil case	435-01-17	09/01/2021	incoming document	21.47
9	Extradition (Cr)	412-01-17	12/01/2021	incoming document	13.07
10	Liquidation	917-02-17	05/12/2020	final judgment draft	6.49
11	Liquidation	321-04-16	15/01/2021	incoming document	6.49
12	Liquidation	856-04-16	08/01/2021	incoming document	6.49
13	Liquidation	312-12-15	10/01/2021	incoming document	6.49

The above report highlights two options for the judge to choose from. Case number 10 is recommended because the CMS recorded that the judge has already created an e-draft of the final judgment in that case. Case number 3 is also recommended because this case belongs to the case type with the highest proportion of old cases (Bankruptcy, as determined in the pending cases dashboard) and this specific case is the oldest one (filed in 2015).

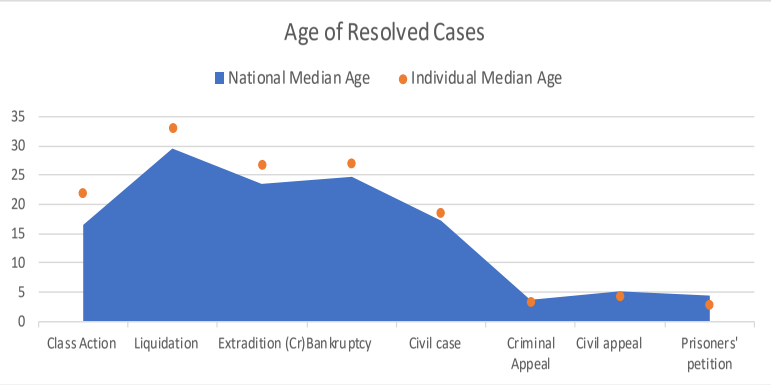
D.4 Resolved cases dashboard

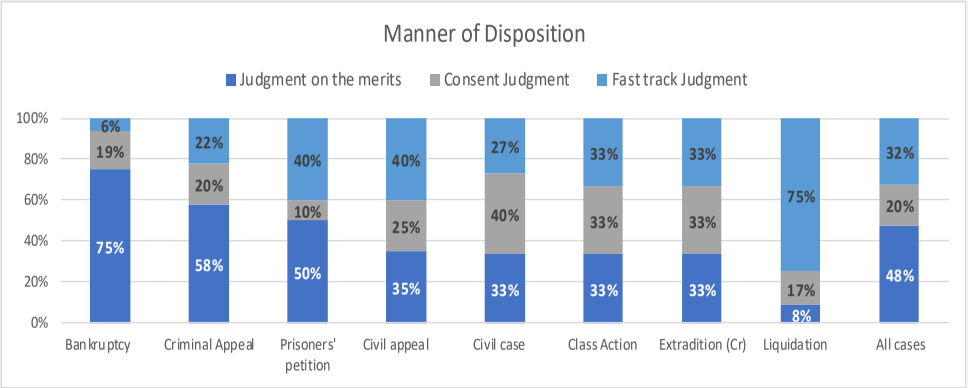
Clearance rate goal	Resolved cases	Incoming cases	CR Goal achievement
(Resolved/ incoming) ≥ 100%	155	162	96%

CR Goal achievement

79% resolved cases **≥ CR goal**

21% resolved cases < CR goal





Case type	National Median Age	Individual Median Age	Individual Vs. National
Class Action	16.6	21.9	32%
Liquidation	29.6	33	11%
Extradition (Cr)	23.6	26.7	13%
Bankruptcy	24.7	27.1	10%
Civil case	17.2	18.6	8%
Criminal Appeal	3.7	3.2	-14%
Civil appeal	5.1	4.2	-18%
Prisoners' petition	4.3	2.9	-33%

Case type	Resolved	Judgment on the merits	Proportionate share - JOTM	Consent Judgment	Proportionate share - CJ	Fast track Judgment	Proportionate share - FTJ
Bankruptcy	16	12	75%	3	19%	1	6%
Criminal Appeal	45	26	58%	9	20%	10	22%
Prisoners' petition	41	21	50%	4	10%	16	40%
Civil appeal	20	7	35%	5	25%	8	40%
Civil case	15	5	33%	6	40%	4	27%
Class Action	3	1	33%	1	33%	1	33%
Extradition (Cr)	3	1	33%	1	33%	1	33%
Liquidation	12	1	8%	2	17%	9	75%
All cases	155	74	**48%**	31	**20%**	50	**32%**

The resolved cases dashboard can display a monthly, quarterly or yearly portrait of the data on resolved cases. This dashboard focuses on two aspects of the cases that were resolved in the observed period (in this example, an annual review of the cases that were resolved in 2020).

1. The age of the cases at the time of disposition – the age of the cases that the judge resolved can be compared to a goal value that was set in advance for each case type. This set goal can and should be based on the average or the median value of the age at disposition. Bearing in mind that the average value is heavily influenced by any outlier (one or two exceptionally large or small values can dramatically change it), the above template uses the national median value of the age at disposition as a comparison frame to the median age of each case type in the inventory of the individual judge.

2. The manner of disposition per case type – there are numerous and different manners in which each case type can be resolved, and the level of detail in the dashboard is therefore dependent on the level of detail and accuracy of the data in the CMS. In the above template it was decided to group over 20 different manners of disposition into three mother groups (that are commonly used in most if not all of the different case categories), to allow a simple and easy-on-the-eye comparison between the different groups. The manners of disposition were grouped based on an assessment of the complexity level of each group. Respectively, the first group is the "judgment on the merits" that usually require the most amount of judicial time to complete; the second group is the "consent judgments" (agreed judgment/settlement, approval of a mediation or arbitration agreement, etc.); and the third is the least time-consuming judgment group, which was labelled as the "fast-track judgments" group (for example, default judgment, pre-trial disposition, withdrawal of claim, lack of territorial jurisdiction and transferrals, etc.).

Layout, types of visualisation and colour choice

The upper row in the dashboard is composed of text boxes that summarise the CR goal and the CR goal achievement at the level of the entire inventory of resolved cases. The second row focuses on the level of the separate case types and includes a combo chart to visualise the comparison between the national value and the individual value of the age at disposition. The blue surface in the combo chart represents the lower half of the national data and the orange dots (scatter chart) represent the individual judge's median value. Respectively, when the dots appear in the blue area, it means that the individual median is lower than the national median. To complete the portrait, the table below provides the raw data and quantifies the gap between the national median and the individual median (indicating the values that are lower than the national value using the green colour).

The segmentation of the manners of disposition by case types is visualised in the stacked column chart, and sorted from the most to least time-consuming judgment. This order draws the eye to the extreme values of the judgment on the merits group (highest in bankruptcy cases and lowest in liquidation cases).

E. Technical requirements

The purpose of this chapter is to acquaint the readers, mainly judicial practitioners and court managers, with very basic and general technical aspects of designing a dashboards system, so they are better prepared to make important decisions related to the process.

While the IT professionals already have the technical know-how in software programming, data science or user interface design, it is the judicial and legal practitioners that provide the basic conceptual foundations of a dashboard. A well-designed dashboard system relies on the knowledge and experience of the judges and court managers in order to: identify the issues the dashboard should address; characterise and categorise the data items that should be displayed; and determine the set goals to be monitored at various levels. These tasks require a deeper understanding of the procedural and substantial differences of legal proceedings in different case categories, as well as an understanding of the operational aspects of court management.

For this reason, the first step in designing a dashboards system is to establish a fruitful collaboration between judicial/legal practitioners and IT professionals, with the former providing the basic content and framework and the latter successfully completing the technical implementation to accommodate the specific needs of the users. To ensure effective communication and mutual understanding, the IT professionals ought to comprehend the requirements of judges and court management, while they in turn need to have a basic understanding of the available technical options, their suitability and possible limitations. There are different paths to be taken, which is why it is necessary to be aware of them from the beginning of the development. A

good starting point is to get in touch with the IT department and familiarise yourself with the circumstances and options by collectively reviewing the basic technical aspects and requirements for accomplishing your goals. In general, creating a court dashboard requires data and a software platform to present them to the users. The nature of the actual technical solution depends on the specific circumstances and unique characteristics of each judiciary (such as data availability, the variety of relevant IT systems in place, type of access, expected functionality, scale, level of detail, etc.)

E.1 Data availability and access

Logically, a dashboard needs data. Figuring out where and how to obtain data is among the very first steps of dashboard development (you should know what you can work with as you think about possible content for your dashboard). Typically, case flow, financial or HR data are generated and stored in a database of a particular IT system (case-management system, budgeting and payroll system, etc.). These systems can be a vital source of structured, electronic data (suitable for computer processing), which are necessary to build a properly functioning dashboard. Of course, there may be other sources available (such as a data warehouse, exported datasets, etc.). In this respect, there are four key questions to answer. In regard to your data, check:

- what are the available data?
- where are they located?
- how can they be accessed?
- are they reliable?

Depending on the desired scope and level of detail, it is possible that you may need to extract and consolidate the relevant data from multiple sources.

Connecting the dashboard directly to a system's database allows seamless updating and flexible use of a vast amount of data in great detail but might require setting sophisticated data retrieval mechanisms or access (security) permissions while navigating a complex database structure. In case you plan to use data from more than one source (CMS, HR, finance systems), it might be necessary to interface these systems data into the dashboard in order for it to work properly.

Not all situations require direct access to an IT system's database though. It largely depends on the scope and level of detail you wish to employ. A basic dashboard (for example, a dashboard displaying annual case counts, number of judges, clearance rate and disposition time per case category for the past three years) can be created rather quickly and easily even from a simple Microsoft Excel spreadsheet table.

Depending on the level of detail and scope of information included in the dashboard, the question of its accessibility (private or public content) should also be addressed – while bearing in mind aspects of accountability and transparency (public service) as well as independence of the judiciary. A personalised task-management dashboard of a particular judge is more suitable to being accessed via a secure user log-in system, while general, non-sensitive court statistics could be, for instance, simply displayed on a public website of the Ministry of Justice.

E.2 Dashboard platform (software)

One of the key decisions is choosing a software platform for the dashboard. In this respect, the most common options include the following.

a) Using a Commercial BI (business intelligence) software or a web service providing business intelligence and data visualisation solutions – such ready-made solutions save the need to develop a technical platform from scratch, and may only require "plugging in" the data and setting the visualisations in the built-in structure. These products tend to be regularly updated with new features and are able to connect to any standard data source. However, these products are made to work primarily with statistical data, as their role is to display charts and graphs. As a result, they usually do not provide other types of services you might seek, such as personalised task management featuring notifications for individual judges, hearings schedules or listing case details, all of which are more suitable to being handled by the CMS itself or other specialised software.

b) Developing a dashboard internally within the CMS. Programming a new, custom dashboard capability directly within your existing IT system (such as CMS) usually requires time and resources because it basically means creating and maintaining a new product or functionality. However, it allows tailoring the product to very specific needs. Moreover, the already existing user log-in mechanism of the CMS could be useful when creating personalised dashboards for individual judges, for instance. Since the dashboard

is part of the existing CMS, accessing and navigating its database should not be an issue for the system's developer in this case. On the other hand, integrating data from multiple different systems within a dashboard that is an internal part of a CMS might be a challenge as their interoperability is not always a given.

To sum up, determining which solution is better in each particular situation requires an assessment of the unique circumstances of each judiciary. This assessment should include all major stakeholders and IT professionals and take the following into consideration:

- The purpose of each dashboard and the needs and expectations of the different users
- The scope of data and desired level of detail (is there a need for some sort of regular statistical report or a complex, daily updated, interactive technology for task management or advanced self-service analytics?)
- The available financial and IT resources (are the necessary data available and resources to fulfil your objectives?)

F. Guidelines for creating court dashboards

1. **Set clear objectives for each dashboard**
   The basic building block to a successful dashboard is that all respective users of the dashboards share a common understanding of the purpose of each dashboard.

2. **Involve all respective stakeholders in the design process**
   The inclusion of different types of users in the process, mainly judges and court managers, will ensure that their needs and expectations will be taken into consideration. This, in turn, will ensure a reliable and clear definition of KPIs, a personalised and customised design tailored to the different types of users, and above all a sense of commitment and ownership of the process by the judges and court managers.

3. **Identify the relevant KPIs**
   In this respect, the recommendation is to limit the list to KPIs to avoid burdening the process of data collection and analysis as well as the process of designing the dashboards. Therefore, it is recommended that this list focuses on data elements that, ideally, satisfy the following criteria (UNI 2003):
   - provide relevant data on the desired performance targets of the court;
   - are simple and easy to understand/interpret;
   - are able to indicate time trends;
   - "respond" to changes within or outside the court system;
   - require minimal effort of data collection and data processing;
   - can be updated easily and quickly.

4. **Complete a comprehensive assessment of available data sources**
   This step is essential to determine the accessibility and reliability of the relevant KPIs for each data dashboard. One of the most important prerequisites to creating a dashboard is structured, electronic data (suitable for computer processing), which is why it is critical to first figure out where and how to obtain the necessary data when contemplating possible KPIs for a dashboard.

5. **Group the KPIs into sets per dashboard**
   As a starting point for judiciaries seeking to set up a system of dashboards, it is recommended to include the following sets of KPIs in this system.
   - General case counts – annual "case counts" of the incoming cases, resolved cases and pending cases.
   - Backlog analysis – monitoring the pending cases by "age" (number of pending cases over one year, two years or three years old, etc.).
   - Duration of proceedings – number of days between the filing date of a case to the date it was resolved.
   - Clearance rate – resolved cases per case type ÷ incoming cases per case type x 100.
   - Calculated disposition time – number of pending cases at the end of the year ÷number of resolved cases within that year x 365 days.
   - Manner of disposition – segmentation of the annual resolved cases by manner of disposition, that is, the proportion of cases resolved "on the merits" or by way of "consent judgment", "default judgment", etc.

As mentioned in the previous section, deciding on the number of dashboards and the degree of detail per dashboard is directly linked to the reliability and accessibility of the data sources as well as to the IT capacity, manpower and financial resources in each court system. Therefore, it goes without saying that each judiciary is welcome to add to the list of KPI sets mentioned above, or to change the composition in each set in accordance with the needs, expectations and capabilities of each judicial system.

6. **Choose the right visualisation for displaying the data**
   A good starting point for how to best visualise KPIs is to review the way these KPIs are represented in internal reports and other documents. As a general frame of reference, if the aim is to visualise a comparison between different data elements (KPIs or sets of KPIs), the most frequently used manner of visualisation is by bar or column charts (vertical or horizontal bars). Alternatively, when visualising parts as a whole (for example, proportion of cases resolved in each manner of disposition), this can also be done by using a pie chart or stacked columns chart.

7. **Apply effective colour pallets that serve the purpose of each dashboard**
   - As a rule of thumb, colours should be used only to improve understanding of the data. In other words, overuse or misuse of colour, that might overwhelm the viewer, should be avoided.
   - Simple colour schemes contrasting against a monochromatic background (typically white or grey) should be used.
   - Bright colours should be used to emphasise important/exceptional data and muted colours for regular information.
   - The red, orange and green colours should be used as traffic lights to attract people's attention (red = negative, green = positive, orange = mean/median). This use of colour should be made clear and remain the same in all charts and dashboards to avoid confusion.
   - The colour pallet of each dashboard should correlate with the colour scheme of all the other dashboards and unify them into one dashboard system.

8. **Create the basic structure for the dashboards**
   This is done by dividing the screen into "invisible lines" that create empty blocks in which you can place the relevant KPIs. Maintaining the same blocks of space in all dashboards will ensure their alignment and consistency with one another. In this respect, it is recommended to limit the blocks of spaces to no more than seven or eight in one dashboard and leave balanced spaces between the blocks (Bakusevych 2018).

9. **Organise and prioritise the layout and flow of each dashboard**
   - The layout should provide for easy scanning from one chart to the next.
   - Related visuals should be grouped together to highlight context.
   - Size, position, order, shape and colour of dashboard elements should be used to create predictable patterns and a design-friendly and intuitive user interface (in terms of layout and flow) or, if need be, to create visual hierarchies and draw attention to important information.
   - The size of similar elements should be consistent and adhere to reasonable scales.

10. **Follow clear and consistent data naming and data formatting**
    If needed, the text could be added (titles, labels, explanations) but kept within reasonable limits – brief, relevant, organised and not distracting/disorienting. This will ensure that the message will get across at a glance.

11. **Use of fonts/typography**
    It is generally recommended to avoid using too many different fonts within a dashboard. Ideally, one or two complementing fonts should suffice – bearing in mind the use of bolding and font sizes (again, in a reasonable amount). It is important to select easily readable font, apply consistent formatting throughout the dashboard and keep sizing proportional to other elements of the dashboard.

12. **Design an intuitive and user-friendly interface**
    The technical knowledge of the users should be considered to allow them to access the data with just a few clicks of the computer mouse.

13. **Establish the desired granularity**
    A dashboard can contain multiple levels and display corresponding views via drill-down functions, show-or-hide chart values, chart zoom-in, data filters (such as overall court statistics, aggregated regional/national overview, detailed performance per judge/senate on a daily/monthly/annual basis). It should be ensured that the user does not get lost in too much detail or become overwhelmed by too many options.

Bibliography

Aikman B. A. (2006), *The Art and Practice of Court Administration*, Taylor & Francis Inc, United States.

Bourne M. C. and Bourne P. (2011), *Handbook of corporate performance management*, Wiley, Chichester.

CEPEJ (European Commission for the Efficiency of Justice) (2016), CEPEJ Guidelines, December 2016.

CEPEJ (European Commission for the Efficiency of Justice) (2019), CEPEJ Glossary, Council of Europe, Strasbourg, as adopted on 5-6 December 2019.

CEPEJ (European Commission for the Efficiency of Justice) (2018-2020), Explanatory note to the scheme for evaluating judicial systems, 2018-2020 cycle.

CEPEJ-SATURN (European Commission for the Efficiency of Justice – Working group on judicial time management) (2020-21), Terms of reference of the Working group on judicial time management 2020-2021.

CEPEJ-SATURN (European Commission for the Efficiency of Justice – Working group on judicial time management) (n.d.), Template Dashboards for court management, Discussion paper, A draft document for the Centre for Judicial Time Management.

Cokins G. (2009), *Performance Management: Integrating Strategy Execution, Methodologies, Risk, and Analytics*, Wiley, Chichester.
Eccles R. (1991), "The performance measurement manifesto", in Harvard Business Review, 69(1), pp. 131-137.

Franceschini F., Galetto M. and Maisano D. (2019), *Designing Performance Measurement Systems Theory and Practice of Key Performance Indicators*, Springer International Publishing.

Wilson H. S. (2003), *The Rise of Judicial Management in the U.S. District Court*, *Southern District of Texas, 1955-2000* (from the series "Studies in the Legal History of the South"), first edition, University of Georgia Press.

UNI 11097 (2003). *Indicatori e quadri di gestione della qualita*, Milano, available at: http://store.uni.com/catalogo/uni-11097-2003?josso_back_to=http://store.uni.com/josso-security-check.php&josso_cmd=login_optional&josso_partnerapp_host=store.uni.com.

Online sources

Bakusevych T. (2016), "Data Tables Design – Basics" (3 October 2016). Available at: https://medium.com/@taras.bakusevych/data-tables-design-3c705b106a64.

Bakusevych T. (2018), "10 rules for better dashboard design – Practical guide" (17 July 2018). Available at: https://uxplanet.org/10-rules-for-better-dashboard-design-ef68189d734c.

Durcevic S. (2019), "Make Sure You Know the Difference Between Strategic, Analytical, Operational and Tactical Dashboards", 22 July 2020. Available at: www.datapine.com/blog/strategic-operational-analytical-tactical-dashboards/.

The Court Dashboard Manual provides an overview of this management tool for displaying, tracking, and analysing multiple data in one place. Based on performance indicators, it helps courts, their managers, and justice professionals to measure performance and efficiency of judicial work, thus facilitating the distribution of tasks within the courts.

This Manual provides practical, step-by-step guidance on how to develop comprehensive court and judge-level dashboards. It covers the dashboard design process, its content, data visualisation, technical requirements, and contains practical examples of dashboards. The concepts it highlights are presented as food for thought, and court systems are encouraged to take ownership of the general framework and adapt it to their own needs.

The Handbook was prepared by the European Commission for the efficiency of justice's Working Group on judicial time management (CEPEJ-SATURN).

www.coe.int/cepej

PREMS 097521

ENG

www.coe.int

The Council of Europe is the continent's leading human rights organisation. It comprises 47 member states, including all members of the European Union. All Council of Europe member states have signed up to the European Convention on Human Rights, a treaty designed to protect human rights, democracy and the rule of law. The European Court of Human Rights oversees the implementation of the Convention in the member states.

cepej

European Commission for the Efficiency of Justice

Commission européenne pour l'efficacité de la justice

COUNCIL OF EUROPE

CONSEIL DE L'EUROPE