HUMAN RESOURCES MANAGEMENT INFORMATION SYSTEMS IN THE CIVIL SERVICES OF THE WESTERN BALKANS:

A TECHNOLOGICAL FUNCTIONAL AND DATA PERSPECTIVE

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HUMAN RESOURCES MANAGEMENT INFORMATION SYSTEMS IN THE CIVIL SERVICES OF THE WESTERN BALKANS:

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The Regional School for Public Administration (ReSPA) is an inter-governmental organisation for enhancing regional cooperation, promoting shared learning and supporting the development of public administration in the Western Balkans. As such, it helps governments in the region develop better public administration, public services and overall governance systems for their citizens and businesses, and helps prepare them for membership of and integration into the European Union (EU). The members of ReSPA are: Albania, Bosnia and Herzegovina, Montenegro, North Macedonia and Serbia.

Contents

Abbreviations

EU	European Union
HR	Human Resources
HRM	Human Resources Management
HRMA	Human Resources Management Authority of Montenegro
HRMD	Human Resources Management and Development
HRMIS	Human Resources Management Information System
OECD	Organisation for Economic Co-operation and Development
PKI	Public Key Infrastructure
SCS	Senior Civil Service
SIGMA	Support for Improvement in Government and Management
SSO	Single Sign-On
UX	User Experience
WB	Western Balkans

EXECUTIVE SUMMARY

The study analysed the use of the Human Resources Management Information Systems (HRMISs) and related applications in the digitalisation of HRM processes in the civil services of the Western Balkans through three dimensions. First, the analysis of the **technology** dimension shows that the software and servers are in place, however there is room for development when approaching the issue from the perspective of the broader HR data ecosystem. Integration of the HRMIS with the government interoperability framework remains limited. This inhibits automatic data exchange that could help to save time in relation to data entry and improve the quality of data. Another issue related to digital government enablers is authentication. None of the administrations uses government-supported e-identification tools for authenticating HRMIS users, let alone e-signatures for signing documents. Better integration would help to make the use of the HRMIS more secure and take advantage of single sign-on functionalities (including the integration of different databases), while improving the take up of e-authentication tools. Emerging technologies, such as cloud computing and artificial intelligence, are not used in any of the administrations in the area of HRM.

Second, the analysis of the **functionality** dimension shows that all the HRM functions studied are covered by at least some of the administrations and integrated as HRMIS modules. Separate applications are often used for recruitment, e-testing and e-learning. The technical aspects of HRM (record keeping) and reporting are usually operational. However, the least used functions are: working time, allowances, training, e-learning, recruitment and the internal labour market. Salary- and allowance-related modules are, in most cases, not integrated into the HRMIS, which also diminishes the capacity of the central civil service agencies to manage fully integrated HRM policies. Access to the HRMIS is still limited only to the HR staff, as self-service does not exist for most processes. Only in a few cases has access been extended to employees and managers. Even then, the access is rather passive and limited to viewing one's own data, and not to changing it. Some transactional e-services have started to emerge in the areas of recruitment and training.

Third, the analysis of the dimension of **data** availability and quality shows that the issues described under the dimensions of technology and functionality result in problems with reporting. Although many of the studied HRM data items are included in the HRMIS, there is high variability across

ReSPA members and areas. Data availability is lacking mostly for strategic areas of HRM, such as training, performance appraisals, senior civil service (SCS), recruitment and remuneration. This limits the options for evidence-based decision making, but also for monitoring the implementation of strategic objectives, not to mention effectively performing and improving the HRM procedures. The main problem is with data completeness. When accepting a completeness accuracy level of 90%, the situation looks much better. Thus, the reporting quality depends on the area of HRM and more accurate reporting might need substantial extra manual work. A longer time period for generating reports would consequently lengthen the decision-making process and undermine the credibility and status of the HR staff.

1

INTRODUCTION

The Regional School of Public Administration (ReSPA) has been following the development of the Human Resources Management Information Systems (HRMISs) in the civil services of the Western Balkans since 2015. In 2015 ReSPA produced the first baseline study and a further analysis was conducted in 2020. The HRMIS is indispensable for designing and monitoring Human Resources Management (HRM) policies and conducting everyday procedures. Therefore, it is also explicitly covered in the Principles of Public Administration, and its implementation is closely followed by the OECD/SIGMA. SIGMA has separate sub-principles under Principle 2 of the area of Public Service & HRM related to central coordination and monitoring of HRM processes and its support by an HRM information system:[1]

- – A central co-ordination unit, sufficiently empowered and <u>capable of leading, supporting and monitoring the implementation of the values</u>, policy and legal framework of the public service is in place.
- – An <u>HRM information system to support strategic workforce planning, management and monitoring of HRM practices</u> in the public service is in place, including correct and complete data at the levels of the public service institutions as a whole and of individual public servants, as required by the legislation, and enabling statistical information to be provided at a given date. This system interacts electronically with other national databases to avoid duplication of data gathering.

This excerpt shows that the HRMIS is not an end in itself but a tool for ensuring strategic, professional, well managed and co-ordinated HRM processes. However, the SIGMA monitoring assessments show[2] that it is often very difficult to get even quite basic HRM data. It is not collected at all, or even if it is, the data in the HRMIS is incomplete or poor-quality. The summary of the 2021 monitoring report says that, although all administrations have undertaken ambitious projects to develop HRMISs, no system is complete or has been rolled out to all institutions and populated with complete data. Therefore,

1 https://sigmaweb.org/publications/Principles-of-Public-Administration-2017-edition-ENG.pdf.
2 See different SIGMA assessment reports and the indicator value tables where it is stated "data not available": https://sigmaweb.org/publications/monitoring-reports.htm.

the existing HRMISs do not yet allow for data-driven analytics and HRM.[3] More importantly, the main users of the HRMIS are not international organisations, but the managers, employees and HR units of institutions and civil service co-ordinators. The HRMIS should provide reliable, meaningful and up-to-date data for making management and policy decisions. Also, the HRMIS should support the everyday HRM processes to simplify the work of the managers and employees, so that they can focus on their core tasks.

HR units and civil service co-ordination bodies[4] will not be taken seriously if they are not able to provide the decision-makers at the top management and political level with the necessary data quickly. Analytics has gained top priority in HRM in the last decade and it has helped the HRM function to improve its status in the organisational hierarchy. However, when we talk about analytics, we do not mean annual reports or regular surveys. Data needs to be available at the push of a button whenever the decision-makers at different levels (line and top-level managers, political appointees) need it. Some of the data should be fed to them automatically without any human intervention. This all would require a fully operational HRMIS integrated with other databases – *HR data ecosystem* – where the HRMIS plays a central role.

Different dimensions need to be taken care of to ensure that the HR data ecosystem performs seamlessly from the users' perspective. Analysing these dimensions should provide a comprehensive overview of the state of play with the HR data ecosystem in the civil services of the Western Balkans.

Technology – Nowadays, databases should ensure basic functionalities, but also take advantage of modern technologies to make the processes even more effective and efficient. The technologies involved in the HR data ecosystem in the public administration are not limited to servers and database software but also include wider digital government tools. The HRMIS needs to be integrated with other government databases through the interoperability framework to ensure automatic data exchange and better-quality data. E-certification and e-signatures would enable the widening of the user base of the HRMIS and make it more secure. In addition to that, as we are dealing with data and databases, in the present day it is difficult to escape topics such as cloud computing and AI. This paper will analyse these technical aspects to see whether they are fit to face the challenges.

Functionality – It is not sufficient to have the relevant technology procured and installed; it also needs to be put to effective use. The HRMISs have been in use in the civil services of the Western Balkans for a long time, but earlier ReSPA studies show that they are not fully functional. There are two major sets of problems related to this. First, the investment made in procuring and installing the software and technology does not pay off if substantial parts of the software are not used in practice. Second, it puts serious limits on the integrated digitalisation of the HRM processes if there are serious gaps in some areas. Thus, this paper analyses how the different HMR processes are integrated with the HRMIS and related applications, and how this influences the overall digitalisation of the HRM processes.

Data availability and quality – One of the most important success factors in measuring the effectiveness of the HRMIS and related applications is whether they are able to provide the necessary data at the push of a button. This would presume that: the data fields for analysing the key HRM areas exist; they are used in practice; the data is complete and trusted; and the system allows the

running of quick reports. The study takes a closer look at the availability and quality of the HRMISs' data based on standard questionnaires used by the OECD and the European Commission in studying the area of HRM.
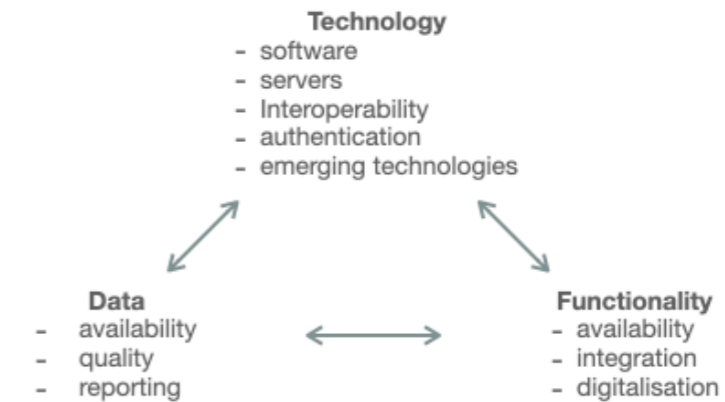

Technology
- software
- servers
- Interoperability
- authentication
- emerging technologies

Data
- availability
- quality
- reporting

Functionality
- availability
- integration
- digitalisation

Figure 1: Three dimensions of the HRMIS analysed in this study

The three dimensions are separated for the purpose of this study but, as the following chapters show, it is much more difficult to separate them in practice, as they are heavily interdependent. Therefore, in analysing these dimensions, it is more valuable when it is done together.

The study is based on two questionnaires (see Annexes 1 and 2) filled in by the civil service co-ordinating bodies in the Western Balkan administrations.[5] Questionnaire 1 (conducted via Google Forms) focused on the key technical and functional aspects of the HRMIS and related applications. We focus here on the key technical issues, from the point of view of both hardware and software, with the top concerns being: cybersecurity, maintenance, accessibility, back-up, hosting, single sign-on and interoperability. This questionnaire was built to a large extent on the questionnaire used in the ReSPA 2020 study on HRMISs, although several questions have been rephrased and some additional questions added. The main conceptual difference compared to the 2021 survey is that, this time, the respondents had to answer the questions on each module separately, even if these were integrated into the HRMIS. In 2021 they needed to answer these questions only if the module/application was not part of the HRMIS. This allows a more detailed understanding of the functionality of all modules and whether there are major differences between them.

Questionnaire 2 is another part of the methodology which was not used in the previous study, and focuses explicitly on the availability and quality of data. It was conducted by using an Excel file that listed statistical data items used by the:
- OECD/SIGMA in conducting the regular monitoring assessments in the pre-accession countries based on the Methodological Framework[6] of the Principles of Public Administration;[7]

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3   https://sigmaweb.org/publications/Summaries-Monitoring-Reports-2021-Public-Service-and-HRM.pdf.
4   I.e. ministries or authorities responsible for the co-ordination of the civil service and HRM policy.

5   Department of Public Administration (Albania); Civil Service Agencies in Bosnia and Herzegovina (CSA of BiH, CSA of FBiH, and CSA of RS), Human Resource Management Authority (Montenegro); Ministry of Information Society and Administration (North Macedonia); and Human Resource Management Service (Serbia).
6   https://sigmaweb.org/publications/Methodological-Framework-for-the-Principles-of-Public-Administration-May-2019.pdf.
7   https://sigmaweb.org/publications/principles-public-administration-eu-candidate-countries-and-potential-candidates.htm.

- OECD Public Governance Directorate in conducting the Strategic HRM Surveys;[8]
- European Commission in asking the administrations for the regular Public Administration Reform Special Group meetings.

The criteria directly related to the statistical data were selected from these different surveys and categorised into different areas of HRM (See Annex 2). This helped to analyse the availability and quality of data from the perspective of the area of HRM. For each data item, the administrations needed to answer whether: 1) it is recorded in the HRMIS; 2) the data is complete and the reports based on them can be trusted; and 3) reporting is possible, relying on the data recorded in the HRMIS. The Excel files were sent to the administrations and they were required to answer the questions on the availability, quality and reporting of the data based on data recorded in the HRMIS or related applications. The administrations were supported by the regional experts. The filled-in questionnaires were reviewed and the open issues specified with the administrations by the Lead Expert.

While Questionnaire 1 was based on inputs, Questionnaire 2 focused on outputs – what type of data the HRM databases are able to produce. Therefore, instead of checking the share of civil servants or institutions that are included in the HRMIS, this questionnaire took a user's perspective on what type of data can be extracted from these databases. This should give a better understanding of how the databases can be used for making decisions in the different areas of HRM. Although there are limitations related to the self-assessment-based surveys, as some administrations may be more self-critical than others, they still give a good overview of how the administrations themselves perceive the situation. The answers were also double-checked with the representatives of the administration and triangulated with other data available (e.g. OECD/SIGMA 2021 monitoring assessment data) so that the experts could ensure consistency. The preliminary comparative results were also presented to all the participating administrations at the workshop organised by ReSPA on 17–18 May 2022 in Petrovac, Montenegro. This enabled the participants to see their results from a comparative perspective and make some corrections. The administrations also had an opportunity to review the final draft of the report. This should give enough confidence that the data and findings of this study are of a good quality and can be trusted. Moreover, on top of the questionnaires used as instruments for collecting data, the regional experts also conducted interviews with the WB administrations in charge of HRM, in order to help them better understand and answer the questions and also to gain a better understanding of the state of play in the ReSPA members that they covered.

The study includes data from all ReSPA members: Albania (ALB), Bosnia and Herzegovina (BiH), Montenegro (MNE), North Macedonia (MKD) and Serbia (SRB). In Bosnia and Herzegovina, we collected data at three levels: institutions at the level of Bosnia and Herzegovina, the Federation of Bosnia and Herzegovina (FBiH) and Republika Srpska (RS).

2

TECHNICAL DIMENSION

The data collected during this study, the comparisons made with the answers in the previous study, as well as the interviews conducted by regional experts, show some progress made by the administrations of the Western Balkans in the field of HRMIS. For example, Serbia is about to introduce a completely new HRMIS system based on modern technology and improved functionalities. Montenegro has improved the HRMIS by including new features, such as "My Personal File". North Macedonia has expanded the outreach of the HRMIS by including more users. Albania has put in place an automatic exchange of data through the governmental interoperability framework. Republika Srpska and the Federation of Bosnia and Herzegovina have further enhanced the cybersecurity of the HRMIS. The FBiH has also developed modules for performance appraisal, mobility and trainers' validation.

	ALB	**BiH**	**FBiH**	**BiH RS**	**MNE**	**MKD**	**SRB**
Number of institutions using the system/Number of institutions eligible	800/1100 73%	N/A	413/413 100%	48/48 100%	82/105[9] 78%	1299/1350 96%	N/A
Number of employees recorded/Number of employees eligible	61,000/85,000 72%	N/A	7924/–	5215/–	–[10]	98,696/132,088 75%	N/A

Table 1: Completeness of the HRMISs

When it comes to the completeness of the HRMISs in the region, in terms of the share of institutions using the system and the employees inserted in the system, there is still some room for improvement. Only the **Federation of Bosnia and Herzegovina** and **Republika Srpska** report that all the required institutions are using the system. However, they do not know whether the data of all the eligible civil servants is being recorded in the system. This is partly because the parallel paper-based processes

8   https://qdd.oecd.org/subject.aspx?Subject=GOV_SHRM.

9   As of the first quarter of 2022 (according to the data received from the HRMA).
10   The data was not available due to heavy cyberattacks on the websites of the governmental websites in Montenegro.

are still in use. In Albania slightly less than and in Montenegro more than three quarters of the eligible institutions are using the HRMIS. In North Macedonia, although almost all of the institutions are using the system, the share of eligible employees recorded in the system is around 75%. This shows that considerable efforts are still needed for the HRMISs to become a proper management tool including full data on staff.

The data on the functionality of the HRMISs was collected by using a self-assessment methodology (see Annex 1). The technical dimension comprises both hardware and software issues related to the HRMIS. Since the HRMIS is an IT system, it is important to verify that appropriate measures exist. This questionnaire contains both qualitative and quantitative questions with a focus on the digital transformation of various HRM processes, including cybersecurity, digital enablers, interoperability, data exchange, user experience (UX) and emerging technologies. The survey was distributed to all central HR units and their replies were collected. We analysed seven responses, as can be seen in the Figures 2-5 below. It is worth mentioning that for **Serbia** we received responses for the old system that is being discontinued and for the new system that has not been put into use yet. Therefore, the figures below include only the answers related to the old system. However, the features of the new system are included in the analysis, where relevant. There is no HRMIS at the level of the **institutions of Bosnia and Herzegovina** and standalone systems are used for training management, e-learning and e-recruitment.
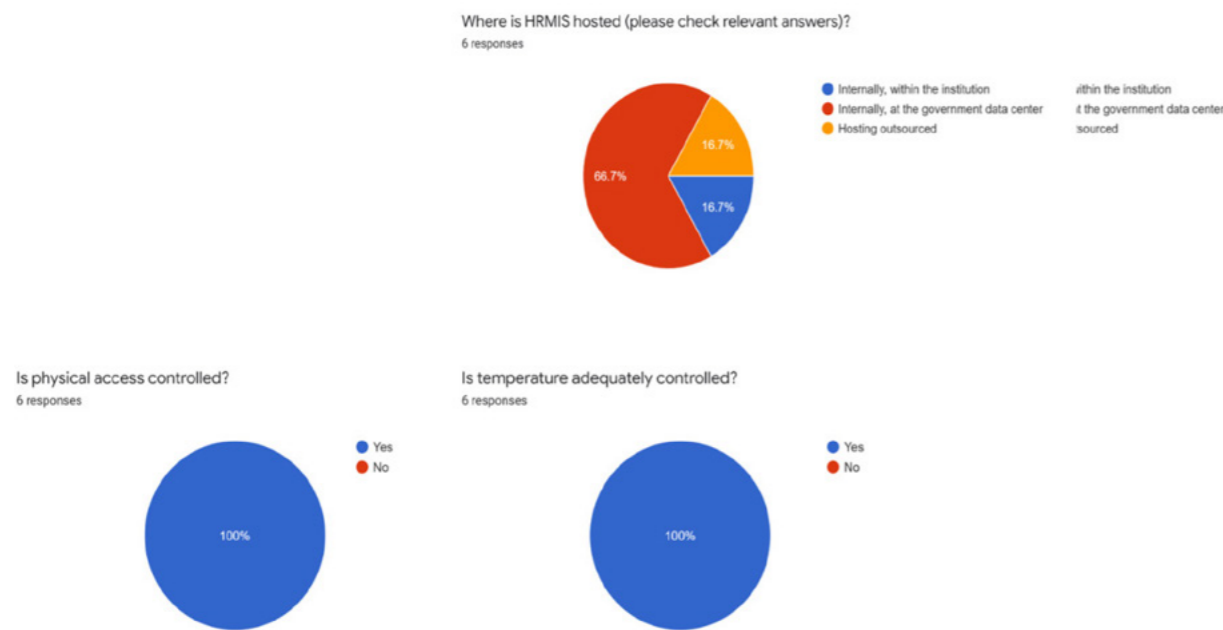

Figure 2: Key technical features (hosting, access and temperature control)

From a cybersecurity perspective, there have been no major changes since the 2021 ReSPA study[11] and it can be seen that the systems are mostly hosted internally in government data centres. Hosting is outsourced in **North Macedonia**. Physical access to and the temperature of the servers is controlled in all administrations. This is good practice.
Moreover, all administrations (except **Serbia** with the current HRMIS but planned for the new HRMIS)

have "disaster recovery systems", which is very important for the backing up of data. There has been some progress in this area as these systems were missing in Montenegro and the **Federation of Bosnia and Herzegovina** during the 2021 study. However, there is a major concern throughout the region when it comes to using digital certificates and Public Key Infrastructure (PKI), as the majority of administrations do not use them. This is because the HRMIS needs to be protected from cyber incidents. Digital certificates are used in **Albania**, the **Federation of Bosnia and Herzegovina** and **Republika Srpska**, while they are planned to be used with the new HRMIS in **Serbia**. PKI is currently used only in **Republika Srpska**, while it is planned for this to be used for the new system in **Serbia**. Regarding authentication, all administrations use usernames and passwords, with a few cases using two-factor authentication (in the **Federation of Bosnia and Herzegovina** and **Republika Srpska**).
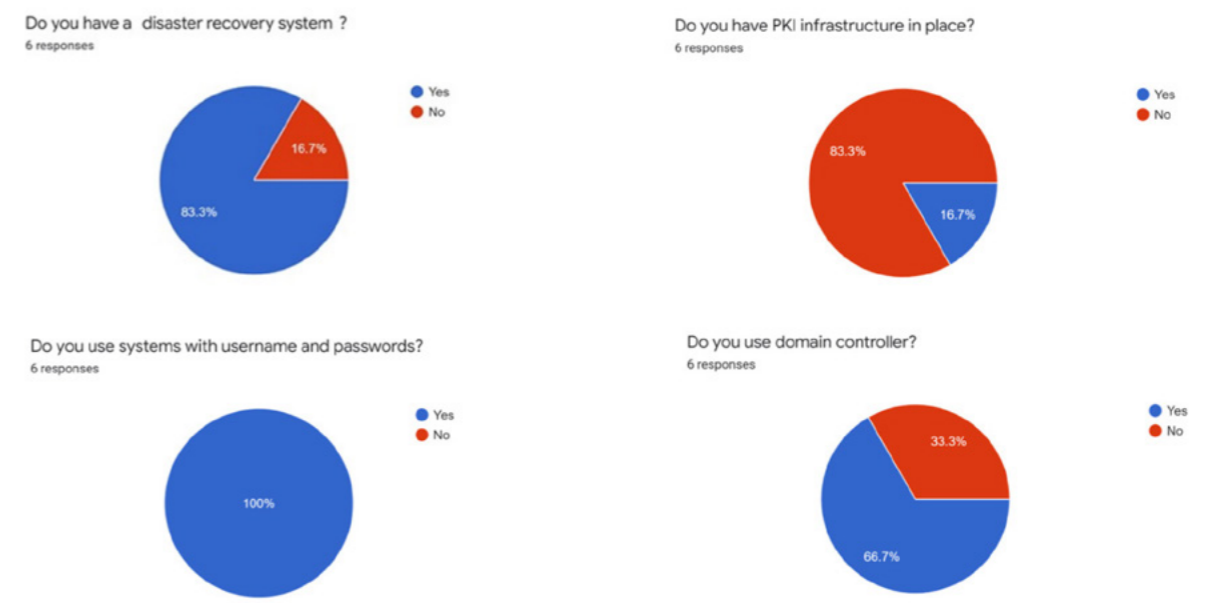
Figure 3: Key technical features (disaster recovery system, PKI, authentication, domain controller)

Authentication, authorisation and confidentiality are supported in all administrations. Authentication means that there have to be procedures to verify the identity of the accessing party. Authorisation means that there is a defined set of transactions that the authenticated party is allowed to perform. Confidentiality means that information is not made available or disclosed to unauthorised individuals, entities or processes. Single sign-on (SSO) is used only in **North Macedonia**, while it is planned for the new HRMIS in **Serbia**. Active directories with a local network or Virtual Private Network are used in **Serbia**, while a smartcard with a 4-digit PIN and password is used in the **Federation of Bosnia and Herzegovina** and **Republika Srpska**. Mobile access is used only in **Montenegro**, while it is planned to be used for the new system in **Serbia**.

When it comes to the scope of the HRMIS, it varies across administrations depending on legislation, being broadest in **Albania** and **North Macedonia** (including all public employees in central and local government) and narrowest in **Serbia** and **Montenegro** (civil service at the central government level).

In terms of interoperability, the HRMIS is interoperable with the Government Service Bus (interoperability framework) in **Albania**, while it is planned to be operable with an interoperability framework in **Serbia** and it is in progress also in **Montenegro**.
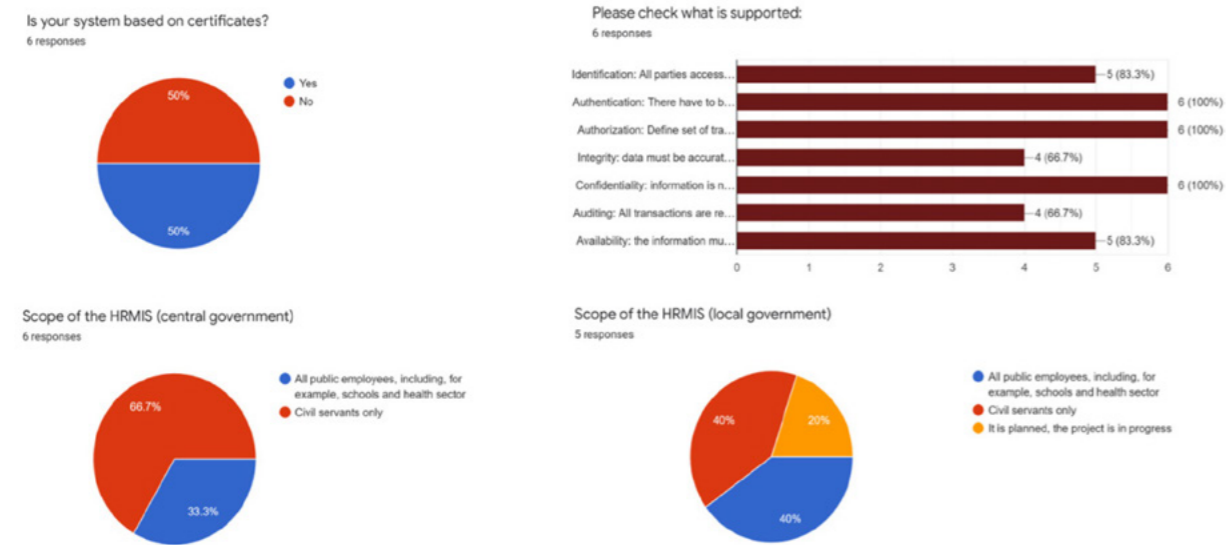
Figure 4: Key technical features (certificates, user groups, integrity)

Data entry for the majority of administrations is done at the institutional level. It is centralised only in the **Federation of Bosnia and Herzegovina**. Data accuracy and quality are ensured mostly by linking the HRMIS with the payroll and by digitalising day-to-day processes. Usually, the data is entered by the HR staff. In **North Macedonia** all employees within the scope of the HRMIS can use it, where those employees authorised by the manager of the institution enter data into the HRMIS. Another example of extending access to the HRMIS for civil servants is **Montenegro**. It is also worth mentioning that some data is retrieved automatically via an interoperability framework in the case of **Albania**. User-based policies exist in all administrations. This means that, for each user group, it is defined what kind of access they have, for example – viewing or editing data.
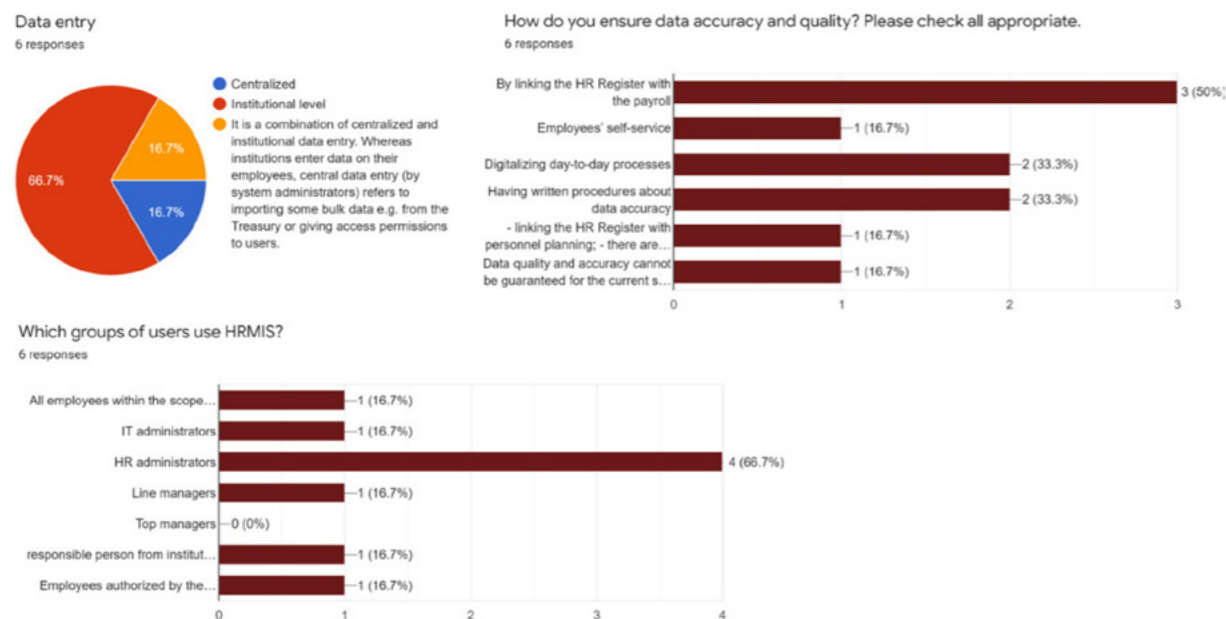
Figure 5: Key technical features (data entry, accuracy of data, user groups)

When it comes to migration to the cloud, this is present only in **North Macedonia**. User experience (UX) is not measured, however steps are being taken when it comes to user satisfaction, as is the case in **Montenegro**, **North Macedonia,** the **Federation of Bosnia and Herzegovina** and **Republika Srpska**. For example, in **Montenegro** there are user guidelines that aim to improve the UX when using the HRMIS. It is worth mentioning that none of the administrations uses emerging technologies or is planning currently to use them.

In conclusion, from a technical perspective, there have been no major changes in the build-up of the HRMISs in the region. Physical access is controlled for the HRMIS servers and also backup systems are in place. However, in order to strengthen the cybersecurity of the HRMIS, PKI and digital certificates should be used. Moreover, three-factor authentication and a single sign-on are advisable in order to improve both cybersecurity and accessibility. Full interoperability and data exchange of the HRMIS with other governmental databases is acknowledged by all administrations but still not widely used (apart from Albania). As the following chapters show, interoperability of the HRMIS with other databases is critical in making data entry more efficient and reliable. It is good practice for user-based policies and roles to exist in all administrations. However, the user experience should be more proactively measured and monitored.

The next chapter will further analyse some of these key technical features in more detail through an HRM perspective.

3

FUNCTIONALITY FROM THE HUMAN RESOURCES MANAGEMENT PERSPECTIVE

Modules and applications in use

1. **Methodological approach**

The analysis of functionality is based, to a large part, on the taxonomy of the ReSPA 2020 study on the HRMIS.[12] The HRM functions that could be performed by using digital tools were divided into 14 categories (see Figure 7). In addition to the HRMIS, the earlier ReSPA study analysed separately only the functions that had stand-alone applications in use outside the HRMIS. That is, if an HRM function was performed within one of the HRMIS modules, it was studied within the whole HRMIS package. In the current study, all HRM functions were analysed separately even if they are performed within the HRMIS. This was done to have a better understanding of the different areas of HRM and whether their functionality differs across modules. Since it is not necessary to run all the functions on the HRMIS, the study took also other related applications into consideration to have a more complete understanding of the digitalisation of the HRM processes.

In studying the modules and applications, it was assumed that the data related to all the HRM processes should be digitally processed. Hence, there should be a module or application that enables this, but not every function needs a separate module; some of them could be performed within a single module. If some of the functions are not covered in the HRMIS or related applications, it implies that fully integrated digitalisation of HRM processes is not possible. Ideally, integration should not be limited to the modules in the HRMIS, but at least two additional dimensions should be ensured.

Firstly, the **HRMIS should interact also with other databases directly related to HRM policies**, such as remuneration, recruitment, training, etc. Although payroll and related databases are often administered by the ministries of finance, it should not be an excuse for detaching them completely

from the HRMIS. It would be very difficult to co-ordinate a fully integrated HRM policy if the central civil service agencies (or HR units at the institutional level) have no overview of the salary levels, allowances, etc. Therefore, the integration of databases should form an *HR data ecosystem* (see Figure 6) where the HRMIS has a central place. This would enable a full overview of the HRM-related data for designing coherent policies and monitoring their implementation.

Secondly, the **HRMIS and related applications should interact with other public databases which are not directly related to the HRM policies** (e.g. taxes, social security, health, education). At the formal level, this is to ensure the *once-only principle* that is required by the laws on general administrative procedures in most administrations covered by this study. At a practical level, this would help to improve the quality of the data and considerably decrease the time required for processing them. As most of the administrations in the study have an interoperability framework (e.g. Government Service Bus) established for the public registries, the HRMIS should be integrated into this framework to ensure seamless and automated data exchange.
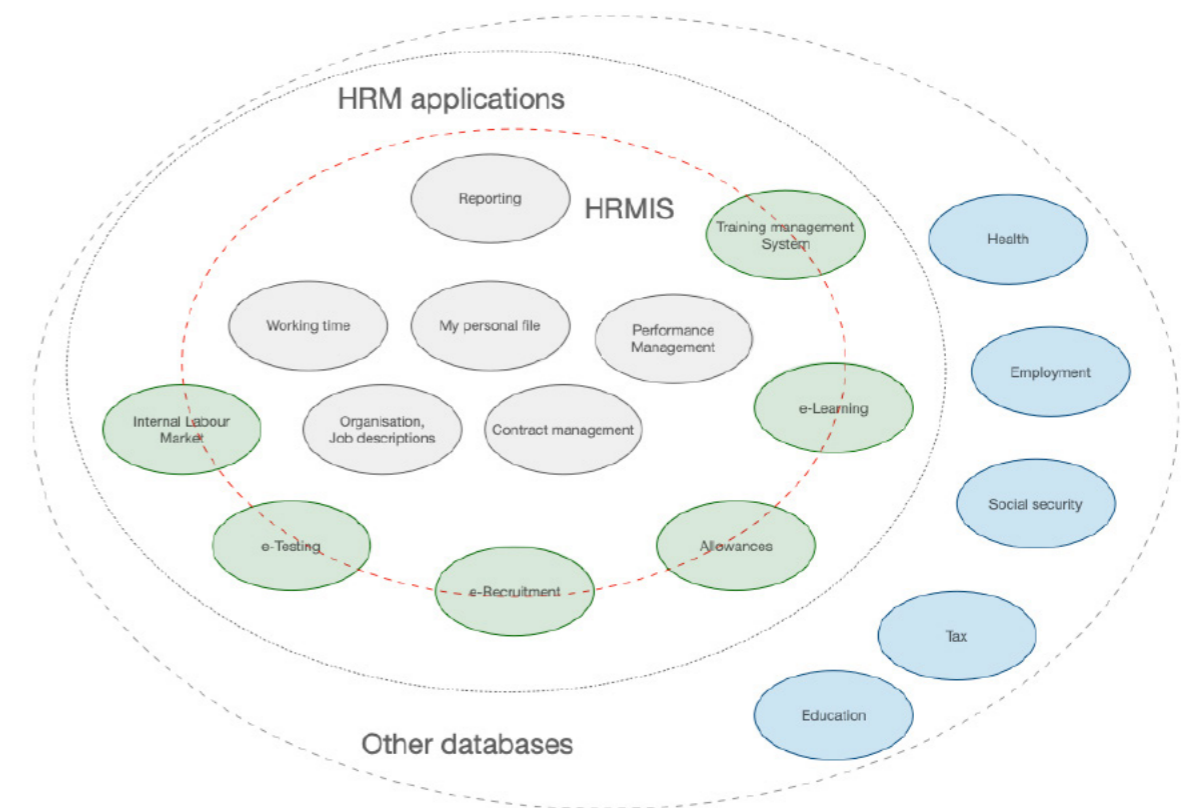
Figure 6: HR data ecosystem

2. **Regional analysis**

As Figure 7 shows, at the regional level all listed functions are included in the HRMIS or related applications in at least one administration. However, when analysing the results via HRM functions or from the administrations' perspective, substantial gaps exist in both. **Albania** and **Montenegro** have the highest number of modules or standalone applications in use. The HRMIS in **North Macedonia** has a technically rather broad coverage of HRM modules; however, in practice, half of them are not used. **Serbia** was developing a new HRMIS during the time of the drafting of this study and the

12   https://www.respaweb.eu/download/doc/Analysis+on+Human+Resources+Management+Information+Sys-tems+in+the+Western+Balkans.pdf/f9efc0da355a44ea88c5ec38ca0a856e.pdf.

old system did not have technical support any more. Therefore, while the old system has a rather limited coverage of HRM functions, the new system will include most of the studied functionalities. The **institutions at the level of Bosnia and Herzegovina** still do not have an HRMIS due to persisting legal obstacles raised by the Data Protection Agency and the key HRM data is processed manually using Excel sheets. Although the institutions at the level of **Bosnia and Herzegovina** have fully operational separate applications for training and development, e-learning and recruitment purposes, the **Federation of Bosnia and Herzegovina** and **Republika Srpska** have a rather similar level of functionality of the HRMIS system. The main difference is that the FBiH has introduced a separate module for e-testing.

When looking at the same data from the HRM area perspective, predictably, the most traditional functions related to **HR record-keeping** (personal record management, organisation and job classification, contract management, disciplinary proceedings) are included in the HRMIS and also used in practice. However, working time administration is possible via the HRMIS only in **Albania**, and allowance management in **Montenegro** and **North Macedonia**.[13] Both functions would be integrated into the new system in **Serbia**.

	ALB	BiH	FBiH	BiH RS	MNE	MKD	SRB
Personal records management	M	-	M	M	M	M	M/M
Organization and job classifications	-	-	M	M	M	M	M/M
Contracts management and related rights	P	-	L	-	M	M	P/P
Administration of working time	M	-	L	-	-	-	-/M
Administration of allowances	-	-	L	-	M	P/L	-/M
Performance management	M	-	M	M	M	L	-/M
Records of disciplinary proceedings	M	-	M	M	M	NiU	P/?
Training and development	NiU	A	L	M	M	NiU	-/M
E-learning	A	A	A	-	-	A	-/-
Recruitment	A	A	A	-	-	A	-/M
Testing	A	-	A	-	A	-	A/A
Internal labour market, mobility	-	-	-	-	M	NiU	A/M
Employees' self-service	NiU	-	-	-	A	A	-/M
Reporting and business intelligence	M	-	M	M	M	M	P/M

HRMIS module: M   Available but not in use: NiU   Limited use: L   Separate application: A   Part of another module: P

Figure 7: Use of different modules and applications[14]

The **recruitment- and selection**-related functions are used less and usually have a separate application developed. Recruitment applications are used in **Albania**, the **BiH institutions** and **North Macedonia.** They are planned as an HRMIS module in the new system in **Serbia**. The recruitment application used in **Albania** is at the highest level of digital maturity and allows a fully transactional and personalised service.[15] E-testing is practised more widely in the region, where **Albania**, the **Federation of Bosnia and Herzegovina**, **Montenegro** and **Serbia** have established separate applications. The internal labour market is integrated into the HRMIS in **Montenegro** and it is a standalone application in **Serbia**. **North Macedonia** has this module integrated into the HRMIS but it is not used in practice.

The **training- and development**-related functions are getting traction in the region and most administrations have recently developed relevant digital tools. Training management tools are currently not used only in **Albania** and **North Macedonia**, although they are integrated into the system. The existing HRMIS does not include a training management function in **Serbia** but this is planned in the new system. In addition to that, the National Academy of Public Administration of Serbia has its own digital systems in use to improve the training management services and reporting. E-learning applications have been introduced in **Albania**, the **Federation of Bosnia and Herzegovina**, the institutions at the level of **Bosnia and Herzegovina** and **North Macedonia**. Performance-appraisal-related modules are integrated in the HRMISs of most administrations that have an operational HRMIS. In **North Macedonia**, a module for performance appraisals exists but is not used at all, since the legal provisions refer only to a paper procedure. However, as the Chapter 4 related to data availability and quality will show, the functionality of performance-management-related modules is rather limited and used only for recording the final results, not conducting the appraisals.

Integration with other government registries is most developed in **Albania** where several modules of the HRMIS (personal records management, working time, e-learning, e-recruitment and e-testing) are interoperable with the MS Enterprise Service Bus (the government-provided interoperability framework) and therefore many data items can be automatically retrieved from other public databases. **Montenegro** has integrated the interoperability module with the information system of the Ministry of Finance and Social Welfare and uses it for calculating salaries. The system started in February 2022 and is applied by 97% of the state bodies. In Montenegro, the e-testing system is also interoperable with the database on criminal records so that civil service applicants do not have to provide a certificate proving their clean criminal record any more. **Serbia** is planning to connect most of the modules of its new HRMIS with the Government Service Bus. This would raise data management in the area of HRM to the next level, if the plans succeed.

13   In North Macedonia, this is compulsory for 29 public institutions and voluntary for the others.
14   In case of Serbia, two answers are shown. The first represents the current HRMIS and the second answer represents the new system that becomes operational by the end of 2022.

15   For more detailed overview of the e-Recruitment system in Albania see: https://sigmaweb.org/events/e-recruitment-civil-service-sigma-21-july-2020.htm.

Scope and users

3.   **Methodological approach**

The **scope** of the HRM data ecosystem is important in ensuring that the government has a complete overview of the people working in the public sector, so that it can make informed decisions and monitor progress. On a more practical level, in addition to the strategic policy issues, the central civil service agencies need to have a complete overview of various HR data items to perform their everyday tasks. The scope of the HRMIS and related applications usually depends on the scope of the civil service and the mandate of the civil service (or public employment) co-ordinating bodies. For instance, if the civil service bodies are narrowly defined as the ministries and administrative agencies of the central government, the scope of the HRMIS may be limited to these bodies. This is also the case if the central civil service agencies have a mandate only over these bodies, as these central agencies are usually responsible for developing and administrating the HRMIS. Despite this, the scope of the HRMIS and related applications can be intentionally broadened, since in many countries the civil service comprises only a small share of the total public employment.

The scope can be broadened in two dimensions. Firstly, extending the scope to the public institutions outside civil service scope (e.g. publicly owned schools, universities, hospitals, enterprises, foundations). Secondly, the HRMIS can include the data on the local government also at two levels: civil servants only, or all local-level public employees.

	Civil service institutions	All public institutions
Central government	Narrow	Mid level
Local government	Mid level	Wide

Figure 8: The breadth of the scope of the HRMIS

This is not to say that the aim should always be to have the broadest possible scope. It depends on the legal and administrative context and the HRMIS should fit with these circumstances. Moreover, the broader the scope of the HRMIS, the more complex the task of getting it fully operational is (as we see from **North Macedonia's** experience). Public-sector employees can work under rather different employment regimes with different legal nuances which need to be reflected in the data fields of the HRMIS. Therefore, even if there is an ambition to have full overview of the entire public sector, it is recommended to broaden the scope gradually. The most logical starting point would be the central government civil service, and then extending it to other types of institutions at the central and/or local levels. Otherwise, there is a high risk of failure if starting with the broadest possible scope from the start.

An argument in favour of a broader scope is that establishing and maintaining an HRMIS involves substantial costs and it would be wasteful for different government institutions to procure their own

systems. This could be especially problematic at the local level in small municipalities. Therefore, an option would be to establish an HRMIS as a platform and open it up for use at the different levels of administration, even if the mandate of the central civil service institution is limited to the central-level civil service. Use of a single platform for the HRMIS would also simplify the reporting on the HRM policies of the public administration as whole.

In terms of **users**, the study focused on two related aspects: their number and composition. The tendency over the last few decades has been to open up the HRM databases to different user groups via self-service and reporting functions. Obviously, all HRMISs need to have at least two user groups: IT administrators, who take care of the technical side of the system; and HR staff, who enter and use the data. However, managers (both the head of the unit and top-level ones) could also benefit from direct access to the system. In a more passive sense, it would be useful for the managers to have an overview of the key HR data related to their team. In a more active sense, an HRMIS could simplify the lives of managers when they are able to approve annual leave or training requests, conduct performance appraisals, etc. digitally through the information system. In addition to managers, the trend has been to open up the system also to employees.

	Passive	Active
HR, IT	N/A	Administering staff data, conducting processes, verifying data, creating reports
Managers	Checking team data, running reports	Administering team data, conducting processes, accepting requests, creating reports
All employees	Checking own data	Administering own data, conducting processes

Figure 9: Key user groups of HRMISs

In a similar vein, access can be passive by nature where the employees are only able to see the data recorded regarding them. But if the system has a self-service functionality that also offers transactional services, the employees could enter or correct their data, apply for leave, training, prefill performance appraisal requests, etc. digitally. Also, other, more specific groups, such as accountants or financial management staff, could require access to the system. In all these cases, not only would these different user groups benefit from broader access, but the HR staff would too. They would benefit in terms of both improving the quality of data and reducing the workload related to data processing, provided that different user groups have different access rights, depending on the sensitivity of the HR data.

Regional analysis

The scope varies substantially across administrations in the region. The HRMISs in **Albania** and **North Macedonia** have the broadest scope and include data on the entire public sector (e.g.

including schools and hospitals) at both the central and local government levels. **Montenegro** and **Serbia** have the narrowest scope, containing data only at the central-government-level civil service institutions. Also, at the level of **institutions of Bosnia and Herzegovina**, applications in the recruitment and training area cover only the central-level civil service. In **Republika Srpska** and **Federation of Bosnia and Herzegovina[16]** HRMISs cover civil service institutions at the local and central levels. However, the scope of the modules or applications can differ depending on the area of HRM. This might be contingent to the legal context where some functions may only apply to the civil service. For instance, the scope of recruitment and e-testing applications in **Albania** is limited to the civil service instead of the entire public sector, as is the HRMIS. In **Serbia**, the internal labour market application is extended to the local government civil service, as the vacancies can be filled with those civil servants on the reserve list from both levels of government. In **Montenegro**, the training module of the HRMIS is opened up also for local-level civil servants, as the Human Resources Management Authority (HRMA) administering the HRMIS is also responsible for the training of local government officials.

	ALB	BiH	FBiH	BiH RS	MNE	MKD	SRB
Personal records management	All CG&LG	-	CS CG+LG	CS CG+LG	CS CG	All CG&LG	CS CG
Organization and job classifications	-	-	CS CG+LG	CS CG+LG	CS CG	All CG&LG	CS CG
Contracts management and related rights	-	-	-	-	-	All CG&LG	CS CG
Administration of working time	All CG&LG	-	-	-	-	-	CS CG
Administration of allowances	-	-	-	-	CS CG	All CG&LG	CS CG
Performance management	CS CG+LG	-	-	CS CG+LG	CS CG	All CG&LG	-/CS CG
Records of disciplinary proceedings	CS CG+LG	-	CS CG+LG	CS CG+LG	CS CG	-	CS CG
Training and development	-	CS CG	-	CS CG+LG	CS CG+LG	-	-/CS CG
E-learning	All CG&LG	CS CG	-	-	-	All CG&LG	-
Recruitment	CS CG+LG	CS CG	-	-	-	All CG&LG	CS CG
Testing	CS CG+LG	-	CS CG+LG	-	CS CG	-	CS CG
Internal labour market, mobility	-	-	-	-	CS CG	-	CS CG+LG
Employees' self-service	-	-	-	-	CS CG+LG*	All CG&LG	CS CG
Reporting and business intelligence	All CG&LG	-	CS CG+LG	CS CG+LG	CS CG	All CG&LG	CS CG

All public employees (incl. schools and health sector: All   Civil service only: CS   Central government: CG   Local Government: LG

Figure 10: The scope of HRMISs and applications

Currently the users of HRMISs are mostly limited to HR professionals entering and using the data in their everyday work. As **Albania** and **North Macedonia** have the highest number of institutions included, they consequently also have the highest number of users. **Republika Srpska** has the most limited number of users (50) able to access the database. However, the user numbers can vary depending on the module/application. For instance, the recruitment applications in **Albania** and at the level of **institutions of Bosnia and Herzegovina** have around 10,000 users since they are open to people interested in applying for civil service jobs. However, similarly to the e-learning and e-recruitment in **North Macedonia**, these applications are accessible to all interested people. Although **Montenegro** has a self-service option available through a separate application, the uptake is still rather low (700). Also in **North Macedonia**, all public employees have access to the data recorded on them in the HRMIS. **Serbia** plans to open up most of the modules of their new HRMIS for self-service and therefore is going to have a broad user base including all central government civil servants (around 22,500 people).

	ALB	BiH	FBiH	BiH RS	MNE	MKD	SRB
Personal records management	1000	-	413	50	260	2643	285/22,500
Organization and job classifications	N/A	-	413	50	260	1346	285
Contracts management and related rights	N/A	-	N/A	-	N/A	1346	285/22,500
Administration of working time	1000	-	N/A	-	N/A	N/A	-/285
Administration of allowances	N/A	-	N/A	-	260	2643	285
Performance management	1000	-	N/A	50	260	2643	-/285
Records of disciplinary proceedings	1000	-	200	50	260	N/A	285
Training and development	N/A	3984	N/A	50	300	N/A	22,500
E-learning	1000	3984	N/A	-	N/A	Not limited	N/A
Recruitment	Not limited	Not limited	N/A	-	N/A	Not limited	Not limited
Testing	-	-	N/A	-	6	N/A	3~
Internal labour market, mobility	N/A	-	N/A	-	260	N/A	285~
Employees' self-service	N/A	-	N/A	-	700	All employees	22,500
Reporting and business intelligence	1000	-	413	50	263	2643	285

Figure 11: The number of users of the HRMIS and applications

Data entry is decentralised at the institutional level in all administrations, except in **the Federation of Bosnia and Herzegovina** where a hybrid system is used, and the Civil Service Agency has a stronger central responsibility for ensuring the accuracy of data. Currently only the CSA has access to the HRMIS but work on opening the modules up to other institutions is ongoing.

16   Entity, cantonal and local levels.

In addition to data entry, the HRMIS and relevant applications could be also used for reporting and decision-making purposes. Therefore, there is a tendency of opening up the HRM databases to other groups, such as top-level and line managers. This would allow the managers to have a prompt overview of the HR relations in their teams without always needing to contact an HR unit. This could potentially save time for managers and HR professionals. However, there are a few signs of this yet in the region. Only in **Albania** do the line managers have access to the HRMIS and this is also planned in **Serbia** for their new system. In **North Macedonia** the managers can ask for a user account, but this does not seem to be common practice.

As the user numbers show, data entry is usually done by the HR staff and not much use is made of the self-service option. The first signs of **self-service** are present, although in most cases where it is available, the service is passive in nature and at a low level of digital maturity. Only the e-recruitment service in **Albania** and training of management of **the institutions at the level of Bosnia and Herzegovina** is fully transactional and automated. At **the level of the BiH institutions** an interactive level service is available in the area of e-learning. **Montenegro** has developed a separate application available for civil servants to check their own data (see Regional Practices, Case 3) but a more transactional service is available only in the area of training. Informative-level self-service is available in the personal record management (**North Macedonia**, **Serbia** new system), organisation and job classifications (**North Macedonia**), contract management (**North Macedonia**), recruitment (institutions at the level of **Bosnia and Herzegovina**) and the internal labour market (**Serbia**).

> **Regional practices, Case 1: My Personal File in Montenegro**
>
> The platform "My Personal File" enables all civil servants to see their own data, as well as to communicate with persons working in the personnel department at their institution. All employees can log in (also on a mobile) and get a username and password, which is confirmed by the person in charge of human resources in their institution (very easy for both civil servants and personnel). Employees can see all the data contained in the HRMIS, but they cannot change the data themselves but need to send a request through the application. All changes are made by the HR staff that administer the data in the system. Employees can also see the training programmes for the next period and can apply for training through the platform. This functionality improves the quality of all the data in the system and allows more efficient management of human resources in government institutions. Also, self-service makes communication between employees and the HR staff quicker.

It is noteworthy that self-service is not available in any of the administrations for HR processes, such as performance appraisal, that are administratively burdensome for different user groups (e.g. HR staff, managers and employees). It is currently being developed in **Montenegro** and planned in the new HRMIS in **Serbia**.

4.   **Level of digitalisation of HRM processes**

The representatives of the administrations were asked to assess the level of digitalisation of different HRM processes that follows the same structure of modules as the rest of the questionnaire used for this study. Since Figure 12 is fully based on self-assessment, the results are not necessarily comparable. However, it should give some indication of the areas where the administrations feel more confident or where they clearly see more room for development.

The perceived level of digitalisation varies across HRM functions and administrations. Slightly more than one third of the processes are reported as being fully digitalised, meaning that no paper records are needed. The **Federation of Bosnia and Herzegovina** and **Republika Srpska** assess themselves as the most digital, while **North Macedonia** and the institutions at the level of **Bosnia and Herzegovina** are most self-critical, i.e. saying that most of the processes are either fully or mostly paper-based. In the case of the **BiH institutions** this is understandable as, because of legal issues, they do not have an HRMIS in use and most processes need to be run manually. In the case of **North Macedonia**, several modules integrated into the HRMIS have not been put into use in practice due to legislation that foresees paper-based processes.

The most digitalised processes are: reporting, training and testing; while the processes which are still too reliant on paper are: administration of allowances, working time and the internal labour market.
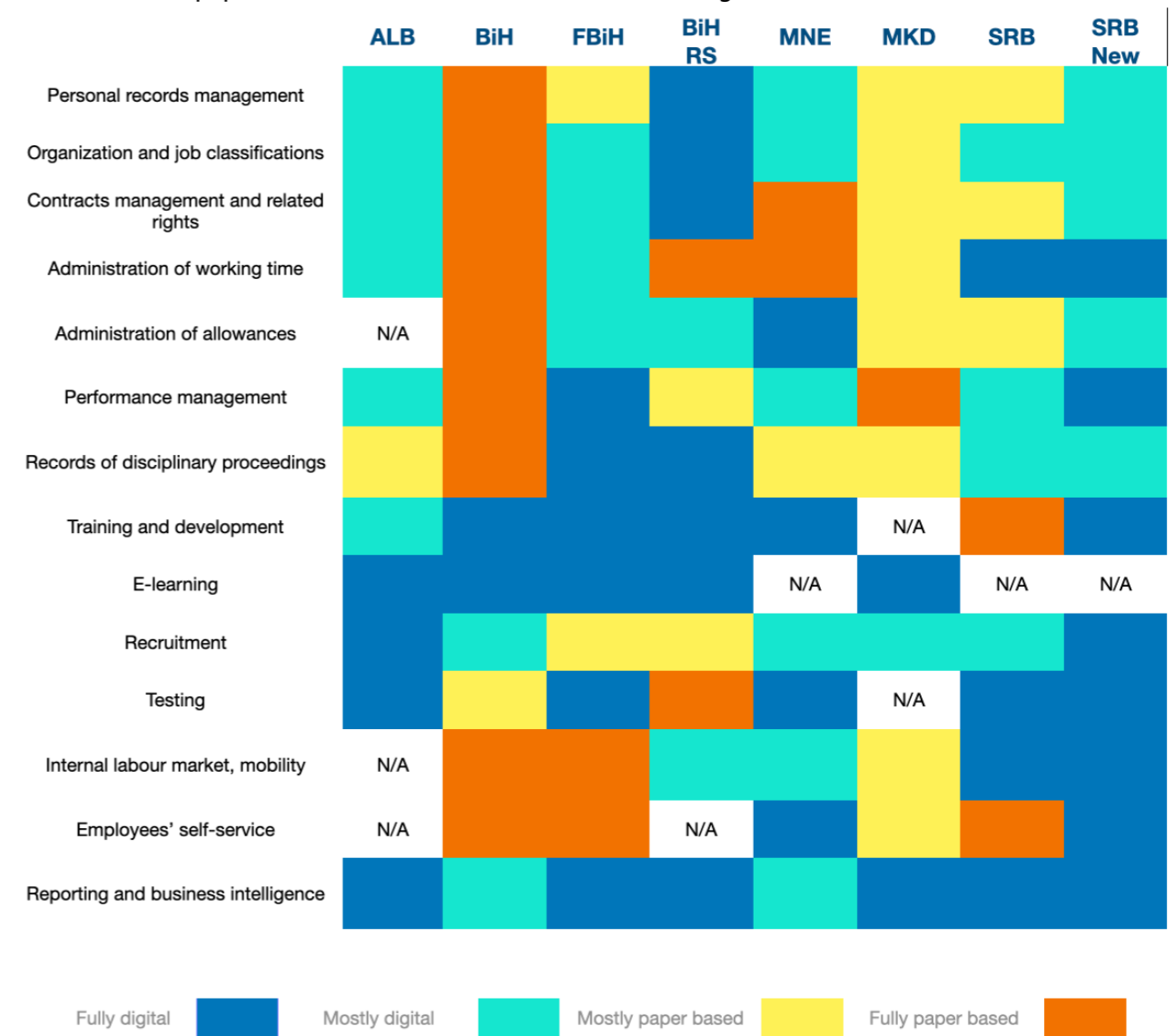

Figure 12: Self-assessed level of digitalisation of HRM processes

The colour-coded Figure 12 indicates that there is a lot of room for development when it comes to the digitalisation of HRM processes. In all administrations there exist areas that are either not covered by the HRMIS or where paper records still play an important role. There also seems to be some overstating involved in the self-assessment, at least in some of the areas. For instance, the performance appraisals are currently conducted manually in all administrations, while most of them have marked them as fully or partly mostly digital. It can also be the case that different respondents have understood digitalisation differently. For instance, even when the performance appraisal forms are filled in in Word or Excel and exchanged via email without printing, this does not make the process digital, as there is still a lot of manual work involved in processing the data.

Key findings and recommendations on the functionality of the HRMIS and related applications

The analysis above can be summarised by the following key findings:

- All the HRM functions studied are covered by at least some administrations in the region. Most functions are integrated as HRMIS modules, while separate applications are used for recruitment, testing and e-learning.
- The most widely used functions are related to the technical aspects of HRM (record keeping) and reporting.
- Substantial gaps exist when analysing the results from the perspective of the administrations and the area of HRM. The least used functions are: working time, allowances, training, e-learning, recruitment and the internal labour market.
- This shows that the HR data ecosystem, together with different HRM functions, cannot be well integrated, which limits their further digitalisation.
- The modules related to salaries and allowances are, in most cases, not integrated into the HRMIS, which diminishes the capacity of the central civil service agencies to manage fully integrated HRM policy. The same applies also at the institutional level for the HR units of ministries and agencies. Only **Montenegro** and **North Macedonia** are using allowances and only **Albania** is using working time-management-related modules.
- Only **Albania**, but also to some extent **Montenegro**, has made progress in integrating the HRMIS and related databases with the government interoperability framework to allow automatic data exchange with other public registries. Slow progress in this area is resulting in rather inefficient data processing and problems with the data quality.
- The scope of the HRMIS varies across administrations depending on the legal system and mandate of the central civil service agencies. The broadest scope is in **Albania** and **North Macedonia** including data of the entire public administration at the central and local levels. The narrowest scope is **Montenegro** and **Serbia**, although also there are signs of extending the scope of some modules/applications also to the local government level.
- The HRMIS and related systems are mostly accessible only to the *back office* – IT and HR staff. Even if the HRMIS is opened up to other groups (e.g. managers and employees), in most of the cases, only passive use of data is possible. Transactional services exist in the areas of e-recruitment (**Albania**) and training management (**institutions at the level of Bosnia and Herzegovina**, **Montenegro**).
- From the HRM perspective, this implies that data entry is usually done only by the HR units,

which makes data processing inefficient and could cause problems with the quality. It also increases the workload of HR staff in processing the data and answering data requests from different user groups.
- From a broader user perspective, this complicates the lives of users at the employee and managerial levels, as in most cases they can make requests and applications and run reports only through the HR staff.

These issues could be addressed through the following actions:

- The use of different HRMIS modules and related applications should be regularly audited to understand the key reasons why the existing modules are not being put to full use; and how to cover the missing areas in the HR data ecosystem (short-term recommendation).
- The less traditional and more strategic HRM functions in the HRMIS, especially those concerning development (training, e-learning, performance appraisal and mobility) should be put to more active use (medium-term recommendation).
- The salary-related functions (working time, allowances) should be better integrated with the HRMIS even if they are not the primary responsibility of the central civil service agencies. This would enable more holistic co-ordination of the HRM policy (medium-term recommendation).
- The HRMIS and related applications should be better integrated with the government interoperability framework to enable automated data exchange with different public registries (e.g. taxes, social security, health, employment, education). This would allow full advantage to be taken of the HRMIS in digitalising the HRM processes. This, in turn, would help to streamline the data entry process and improve data quality (medium-term recommendation).
- After improving the efficiency and quality of data processing within the existing scope of the HRMIS, it should be considered to extend it to other institutions at the central and local levels (except in **Albania** and **North Macedonia** where the scope is already broad). An option would be to let the local governments and institutions that are outside the scope of the civil service legislation use the platform even if the central civil service agencies are not responsible for the accuracy of their data (medium-term recommendation).
- Different user groups (top-level managers; line managers, employees) should have access to the HRMIS to improve the accessibility of the HRM data and save the time of the HR staff in processing their requests (medium-term recommendation).
- In addition to passive access to data, the HRMIS should also have a transactional self-service function to minimise paper-based or manual processes. This would help to streamline the data entry process and improve the quality of the data (medium-term recommendation).

4

DATA AVAILABILITY, QUALITY AND REPORTING

Methodological approach

The functionality of the HRMIS and related applications is critical, but it has only limited value if the databases do not include the necessary data or the reports cannot be easily generated on demand. The OECD/SIGMA monitoring assessments have shown that, sometimes, the administrations get low indicator values not because of the quality of their processes, but because of a lack of reliable data. Therefore, one of the aims of this study was to analyse the functionality of the HRMIS from the perspective of data availability. The focus is on three key aspects: 1) whether the key HRM data is recorded in the system; 2) the level of completeness of the data; and 3) the quality of the reporting (see Figure 13).

The representatives of the administrations had to fill in a questionnaire divided into four parts (see Annex 2) that listed statistical data items used by:
- Part 1: OECD/SIGMA in conducting the regular monitoring assessments in the pre-accession countries based on the Methodological Framework[17] of the Principles of Public Administration.[18]
- Part 2: The Public Employment and Management (PEM) team of the OECD Public Governance Directorate in conducting the Strategic HRM surveys.[19]
- Part 3: The European Commission in asking the administrations to provide for the regular Public Administration Reform Special Group meetings.
- Part 4: Additional indicators suggested by ReSPA.

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17 https://sigmaweb.org/publications/Methodological-Framework-for-the-Principles-of-Public-Administration-May-2019.pdf.
18 https://sigmaweb.org/publications/principles-public-administration-eu-candidate-countries-and-potential-candidates.htm.
19 https://qdd.oecd.org/subject.aspx?Subject=GOV_SHRM.
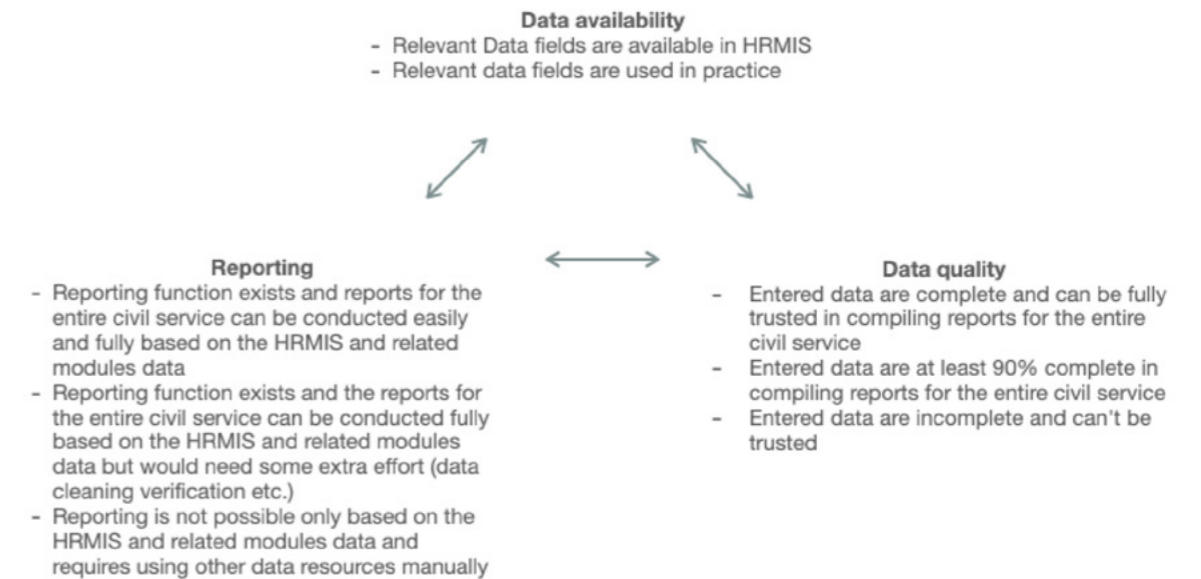
Figure 13: The structure of the analysis on data availability and quality

While the European Commission's data request is fully based on quantitative data, the SIGMA and PEM questionnaires also have many qualitative questions. Therefore, in these two questionnaires, only the quantifiable data items were selected and categorised into nine different areas of HRM (Figure 14).

> **Regional practices, Case 2: Improving the data quality of the HRMIS in co-operation with the Public Revenue Office (North Macedonia)**
>
> The Ministry of Information Society and Administration (MISA) has been facing the problem of public institutions entering data into the HRMIS for a long time. To address this issue, they interlinked the module on the calculation of salaries with the tax declaration database of the Public Revenue Office. When a public institution submits its monthly salary calculation via the HRMIS, it is compared with the data in the tax declaration database of the Public Revenue Office. If the data does not match, it will generate an error message requiring the institution to update the data in the HRMIS before the payment can be completed.
>
> This has helped the MISA to increase the number of employees recorded in the HRMIS from 86,130 (76%) to 101,271 (90%).

This approach has some limitations, as the number of data items varies substantially across HRM areas and, therefore, they have a different weight in the study. There are also overlaps between some of the data items used by the different institutions and they may be included twice. Also, some of the areas are not fully distinguishable, e.g. the Senior Civil Service (SCS) area includes criteria related to recruitment and dismissal, so they could also be placed under these categories. Since the SCS has become a key priority area, not only in the Western Balkans but also globally, all the SCS related data items were grouped under a separate category. This also explains the highest number of data items in this category.

However, the presumption is <u>not</u> that all the HRMISs need to include the data fields for all the items listed in Questionnaire 2. Some of the items may not be relevant in all ReSPA members due to a different legal context. Therefore, most of the charts shown below are calculated based on the data fields that exist in the HRMISs of the analysed administrations. Otherwise, the comparison may be unfair to some countries where some of the data fields are irrelevant and therefore not applicable. For instance, there are mobility-related data items in the OECD questionnaire that are legally not possible in some civil services. It would not be fair to show these as missing data items.

HRM area	Number of data items in the questionnaire
Disciplinary	4
Dismissals	20
General statistics	41
Mobility	14
Performance appraisal	10
Recruitment	22
Remuneration	6
SCS	47
Training	5

Figure 14: The categorisation of data items in Questionnaire 2 by area of HRM

The data availability is analysed from a broader perspective than just the HRMIS. We instructed the respondents to check the relevant boxes also if the data was not available in the HRMIS but existed in other related databases or applications. This is to stress that it is not that important where the data is stored, but whether it is easily retrievable.

Regional practices, Case 3: Interoperable HRMIS (Albania)

In Albania, the HRMIS interacts with other state databases by connecting through the Government Gateway (GG) with the Enterprise Service Bus (ESB). The databases it interacts with are:

Taking data from:
- The Civil Registry, which provides basic information on employees.
- The Treasury, which provides the necessary financial information to make monthly payments to employees through another outbound interaction.
- E-Reports through which the HRMIS is provided with the data on employees who have had medical interruptions as a result of health problems.

Providing data to:
- The Treasury – information on monthly payments to state administration employees (so far in > 100 institutions).
- The High Inspectorate for Declaration and Control of Assets and Conflict of Interest – data on employees subject to the relevant legislation, the list of institutions and organisational units for each institution.
- E-Albania – civil servants can check their data stored in the HRMIS.
- The co-operation platform administrata.al – the list of institutions, organisational units, job positions and information for employees.

- Electronic Signature – it is under discussion whether the HRMIS could provide employee information for validation in creating electronic signatures in Private Key Infrastructure (PKI)

The questionnaire is based on the data requests of different international institutions, but it does not mean that the data is important for satisfying only their needs. On the contrary, all the data items included in their questionnaires should be of great interest also to civil service policy co-ordinators and decision-makers. Although the list of items in the questionnaire seems long, this is still a small proportion of the indicators that might interest them. The reporting system should be built so that, in addition to regular data requests, it should also provide data for *ad hoc* requests catering for very different types of needs. Therefore, despite all the limitations of the analytical approach used for this study, the rather rich mix of different data items should give a good overview of the data availability and quality needed for versatile reporting.

Regional analysis

To get a better understanding of how many data items were collected via the different international studies referred above, it was first analysed whether the relevant data fields exist in the HRMIS or related applications. The reasoning here is that if the data fields are not included in the information system, conducting quick reports or analyses would be difficult and require additional manual work. Figure 15 gives a general overview of the administrations and the main HRM areas where reporting could be problematic, as the data is not recorded digitally in the HR data ecosystem. Understandably, the institutions at the level of Bosnia and Herzegovina and Serbia have the least number of items covered due to the state of play with their HRMISs. In the other administrations, there is a lot of variability across different areas. The dismissals and disciplinary procedures are mostly covered, and the widest gaps are in the areas of performance appraisal and recruitment.
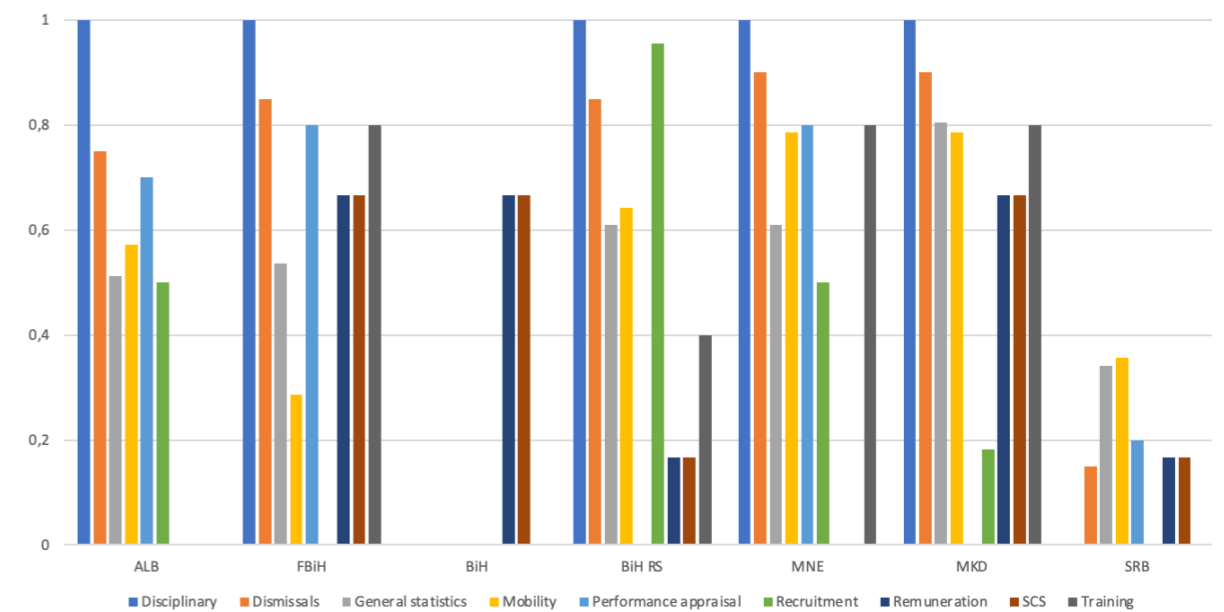
Figure 15: Proportion of data items used in practice in HRMIS/applications[20]

20   The formula used in this figure: answer to the question "Relevant data fields are used in practice" divided by all the data items of the relevant HRM area used in the study questionnaire.

Although, as noted above, it cannot be presumed that all the data items used for this study are relevant in all administrations. Therefore, the target percentage is not necessarily 100%. To lighten the effect of this limitation, the Figures 16-18 are based only on the data fields that are actually recorded in the respective HRMISs and applications.

The picture changes quite substantially if we take a step further and study how much the administrations trust their data in the information systems in terms of completeness.
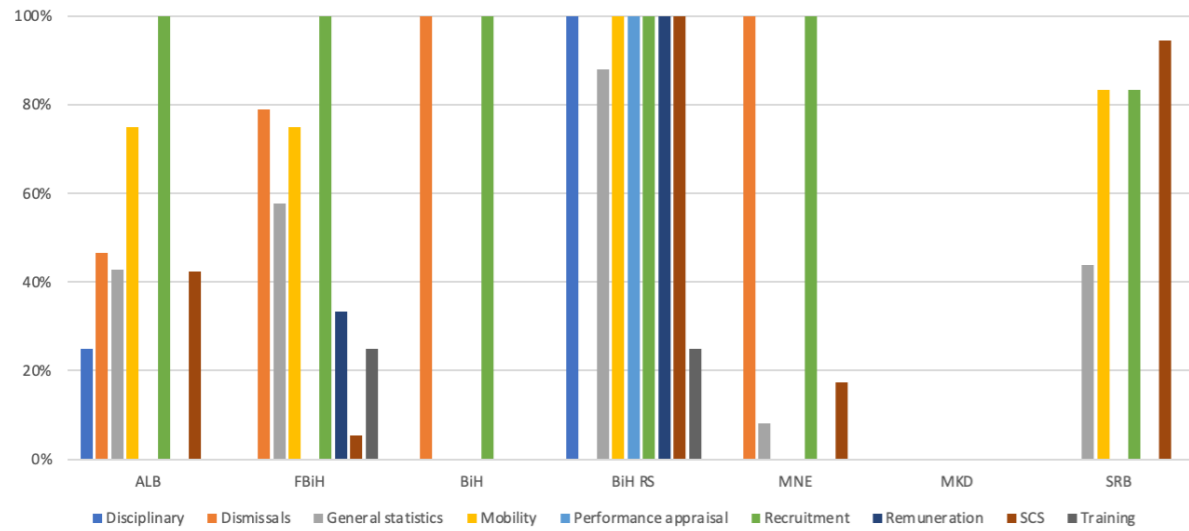
Figure 16: Perceived completeness and reliability of the data (data is 100% complete)[21]

To have a more complete understanding of the data availability in general, we also took into account data that is processed manually. Nevertheless, only the level of **Republika Srpska** is very confident about their data quality. **Albania**, the **Federation of Bosnia and Herzegovina** and **Serbia** are also, but to a lesser extent. Interestingly, while Figure 15 shows rather wide coverage of the data items recorded in the HRMIS and related applications in **North Macedonia** and **Montenegro**, they are much less confident about the completeness of the data. From the perspective of the area of HRM, there is no confidence in the remuneration data in any of the administrations. This is quite likely related to the fact that this data is not stored in the HRMIS but rather in the databases of the ministries of finance. However, also in the areas of dismissal, performance appraisal, recruitment and training, less than half of the administrations feel confident about the completeness of their data.

It can be argued that the area of HRM is very dynamic, and it is almost impossible to have complete data, at least in some areas. Therefore, Figure 17 shows how the situation changes when the data completeness bar is lowered to 90%. Indeed, assuming that this level of completeness is sufficient, the picture looks much more promising in most administrations.

Figure 17: Perceived completeness and reliability of the data (data is 90–100% complete)[22]

Only **North Macedonia** does not trust its data to even be at that level of quality in any of the areas. It is noteworthy that **Serbia** is able to collect reliable data without having an operational HRMIS in several areas, which shows that they have established parallel systems until the new information system is completed. From the perspective of the HRM area, remuneration data is not trusted in most administrations even at a 90% completeness level. Also data for performance appraisals and training is less trusted, which is related to the fact that the HRMIS usually does not include training activities organised at the institutional level.

The reporting function is mostly dependent on the availability and quality of the data. However, it can also show how versatile the HR data ecosystem is in providing the required data.
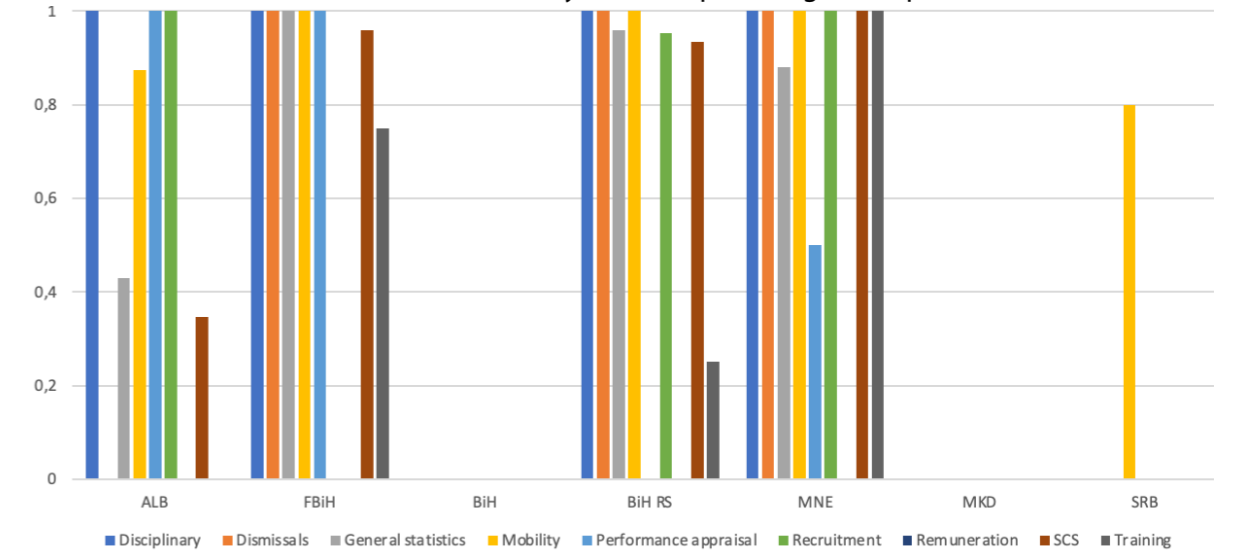
Figure 18: The possibility of reporting based on data from the HRMIS or related applications[23]

21   The formula used in this figure: answer to the questions "Entered data can be fully trusted" divided by ("Relevant data fields are available in the HRMIS or related modules" + "Data is processed manually").

22   The formula used in this figure: answer to the questions ("Entered data can be fully trusted" + Entered data is at least 90% accurate") divided by ("Relevant data fields are available in the HRMIS or related modules" + "Data is processed manually").

23   The formula used in this figure: answer to the questions ("Reporting is fully possible based on data from the HRMIS or related applications" + "Reports can be conducted based on the HRMIS and related applications but would need some extra effort") divided by "Relevant data fields are available in the HRMIS or related applications".

Figure 18 shows how the administrations see the ease of running reports based on data from the HRMIS and related applications. The **Federation of Bosnia and Herzegovina**, **Republika Srpska** and **Montenegro** state that in most areas it is possible to provide full reports without the need of manual collection of data. In **Serbia** and the institutions at level of **Bosnia and Herzegovina** this is understandably not possible, as they do not have an operational HRMIS in place. However, **North Macedonia**, with an HRMIS and other applications in full use, states that the digitally recorded data is not at a sufficient level of completeness or quality to run full reports. Approaching the reporting from the HRM area perspective shows that the most problematic area is, expectedly, remuneration, as the payroll systems are usually isolated from the rest of the HRMIS ecosystem. However, problems exist also in several other areas, such as training, recruitment, performance appraisal and dismissal.

Key findings and recommendations on data availability, quality and reporting

The analysis above can be summarised by the following key findings:

- Although all the HRMISs of different administrations include data in all the different studied HRM areas, there is high variability across countries and areas. The data availability is best in the area of disciplinary procedures and dismissals, and poorest in the areas of training, performance appraisals, SCS, recruitment and remuneration.
- This shows that data availability is lacking mostly for the strategic areas of HRM, which limits the options for evidence-based decision making, but also monitoring of the implementation of strategic objectives.
- There is a major problem with data completeness if one presumes that the data needs to be 100% accurate. Relaxing this presumption slightly, as the HRM data can be quite dynamic in some areas, and lowering the bar to 90% accuracy yield much better results. But even then, there are areas, such as performance appraisals, remuneration and training, where some administrations have data gaps.
- This implies that the reporting quality depends on the area of HRM and more accurate reporting may need substantial extra manual work. There are cases where, even if the data exists, the reporting still requires some extra efforts or manual work. A longer time period for generating reports would consequently lengthen the decision-making process and undermine the credibility and status of the HR staff.
- The most problematic areas in terms of reporting are: remuneration, recruitment, performance appraisals, training and dismissals.

These issues could be addressed through the following actions:
- All the recommendations made in the Chapter 3 dedicated to the functionality of the HRMIS would contribute also to the quality of data and reporting. Approaching the topic of HRMIS from a data-needs perspective can only help to highlight the issues better and bring in some additional arguments (short-term recommendation).
- The administrations should conduct regular data audits of their HR data ecosystem to better understand its effectiveness. Data and reporting quality are excellent key performance indicators for measuring the functionality of the HRMIS and related applications (short-term recommendation).

- Investments are needed to improve the versatility of the reporting function so that *ad hoc* data requests can be easily and quickly answered in order to decrease the manual work and time required for generating reports (medium-term recommendation).
- Strategic areas of HRM, such as performance appraisals, remuneration and training, would require special attention on how to improve the availability and quality of data so that the civil service co-ordination bodies could make decisions that are more evidence-based in these areas (medium-term recommendation).
- Training data should have a wider focus than just the activities organised by the central training institutions. The HRMIS should cover data on all development activities, independent of the provider, including duration and costs (medium-term recommendation).
- The central civil service agencies should start taking an interest also in remuneration-related data even if they do not have formal responsibility. This would allow them to have a more holistic and integrated understanding of the area of HRM (medium-term recommendation).

5

CONCLUSIONS

The analysis of the different dimensions of the HR data ecosystem and the HRMIS as its central component shows that, although the Western Balkan administrations are making steady progress, much remains to be done. The only administration lacking an HRMIS is the institutions at the level of **Bosnia and Herzegovina**, although separate applications have been introduced in some areas, such as training and recruitment. **Serbia** is in a transitional period where the old HRMIS is not supported any more, but the new one is in progress and expected to be taken into use by the end of 2022. Other administrations have had HRMISs in use for several years and are continuously developing them.

The analysis of the **technology** dimension shows that the software and servers are in place and, when approaching the HRMIS in isolation from other databases, the situation looks good. However, when approaching the HRMIS from a broader HR data ecosystem perspective, there is room for development. Only Albania has made good progress in integrating the HRMIS with the government interoperability framework, which allows automatic data exchange. This, in turn, helps to save time related to data entry and to improve the data quality. Also, Montenegro is making some progress with connecting the HRMIS with other databases. Another issue related to digital government enablers is authentication. None of the administrations uses government-supported e-identification tools for authenticating HRMIS users, let alone e-signatures for signing documents. Quite likely this is related to the complexity (sometimes also the costs) of using e-identification tools.[24] Still, both from the general digital government and more narrowly the HRMIS perspective, it would make a lot of sense to use government-supported trust services, and not to invent new ones. It would help to make the use of the HRMIS more secure and take advantage of single-sign-on functionalities (including the integration of different databases), while improving the take-up of e-authentication tools. Emerging technologies, such as cloud computing and artificial intelligence, are not used in any of the administrations in the area of HRM.

The **functionality** of the HRMIS and related applications is, to a large extent, dependent on the development of the technological aspects described above. Poor integration of the HRMIS with other databases results in inefficient data entry, where most administrations need to enter their data manually and cannot take advantage of automated retrieval from other databases. This also creates issues with the data quality. All the HRM functions studied are covered by at least some administrations and are integrated as HRMIS modules. Separate applications are often used for recruitment, e-testing and e-learning. The technical aspects of HRM (record keeping) and reporting are usually operational. However, the least used functions are: working time, allowances, training, e-learning, recruitment and the internal labour market. This shows that the HR data ecosystem, together with different HRM functions, cannot be systematically integrated as some of the crucial blocks are missing or are not at the necessary level of development. Modules related to salary and allowances are, in most cases, not integrated into the HRMIS, which also diminishes the capacity of the central civil service agencies to manage fully integrated HRM policies. Access to the HRMIS remains limited to HR staff, as self-service does not exist. Only in a few cases has access been extended to employees and managers. Even then, access is rather passive and limited to viewing one's own data and not to changing it. The positive exceptions are the e-recruitment (**Albania**) and training management systems (**institutions at the level of Bosnia and Herzegovina, Montenegro**) that also offer transactional services.
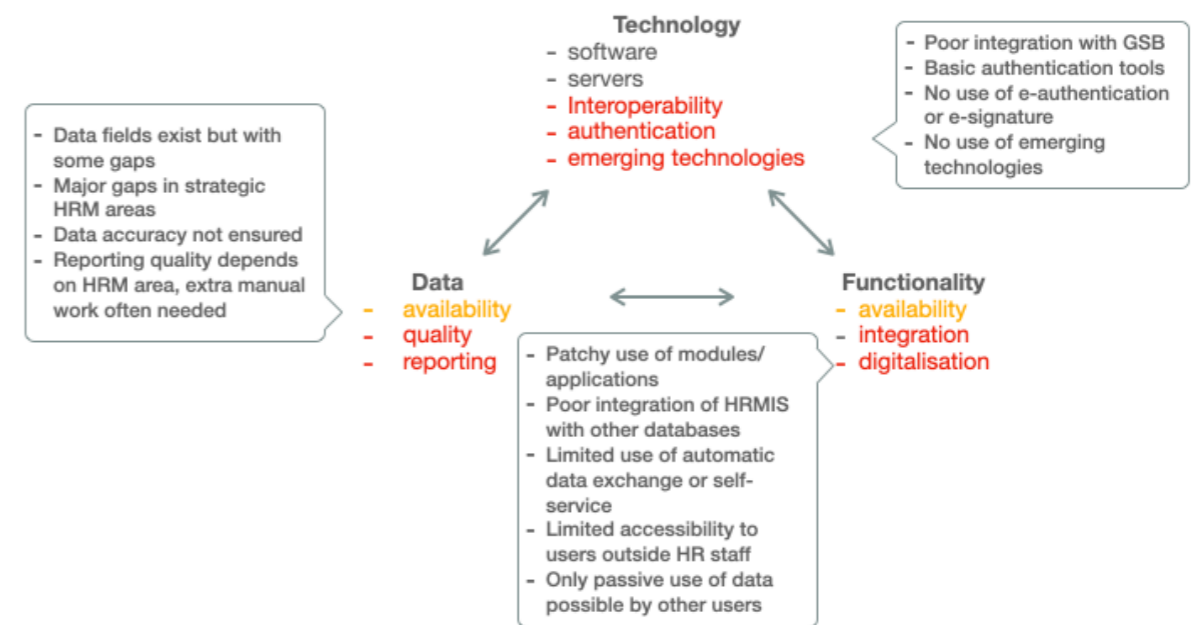
Figure 19: Key findings of the study in three analysed dimensions: technology; functionality; data quality and reporting

As all three dimensions are strongly interrelated, **data** quality and reporting are dependent on technology and the functionality of the HRMIS. Obviously, if the modules are not put to use, data availability suffers. Similarly, if data is not exchanged automatically, it is more difficult to keep it up-to-date or at the necessary quality. This all results in problems with reporting. Although a large part of the HRM data items studied are covered in the HRMIS, there is high variability across countries and areas. Data availability is lacking mostly for strategic areas of HRM, such as training, performance appraisals, SCS, recruitment and remuneration. This limits the options for evidence-based decision making, but also for monitoring the implementation of strategic objectives. There is a major problem

24   SIGMA monitoring assessments have stressed these issues as the main hindrances to increasing the uptake of e-signatures: https://sigmaweb.org/publications/Summaries-Monitoring-Reports-2021-Service-Delivery.pdf

with data completeness. When accepting a 90% level of accuracy, the situation looks much better. But even then, there are areas, such as performance appraisals, remuneration and training, where some administrations have data gaps. Thus, the reporting quality depends on the area of HRM, and more accurate reporting may need substantial extra manual work. A longer time period for generating reports would consequently lengthen the decision-making process and undermine the credibility and status of the HR staff.

Most of the problems discussed above create similar problems at the institutional level and limit the organisations' capacity to manage their staff effectively and strategically. Therefore, it is important to continue investing in the development of the HR data ecosystem. It has almost become a cliché that data is the new oil. Still, it would be very difficult for HR professionals to be taken seriously nowadays if they were not able to swiftly provide the necessary data for decision-makers at different levels. If an HR unit wants to improve its status and credibility in an institution, it needs to prove that it has something to bring to the table when strategic or organisational issues are discussed. This would be very difficult without having reliable and practical data.

The central civil service co-ordinators need to audit their HR data ecosystem in these three different dimensions. There is a self-assessment framework provided as Annex 3 of the study for detecting a more general type of issue. This can be used as a first step in analysing the state of play and planning more detailed studies on the key issues. As the paper has shown, one of the most practical key performance indicators for these purposes is analysing what kind of data the HRMIS is able to provide. If it this not possible for some key areas, it can be further studied whether the problems are technical, legal, procedural or human, and action plans can be designed to overcome them.

Until now, the main focus has been on the more traditional functions of the HRMIS related to record keeping. It is a logical first step to start with the core data. However, the more strategic areas also need to be given a higher priority now. For some of them (such as training and remuneration), it is not only related to the functionality of the HRMIS, but also to the mandate of the central civil service co-ordinators (and HR units at the micro level) on how they perceive their role. Better integrating strategic functions, such as the recruitment, performance appraisal, training, mobility and remuneration functions, with the HRMIS would lay the ground to improve the level of digitalisation of HRM. This would not only benefit the HR units but also other users of these processes, starting from civil servant candidates and ending with the top-level managers and political decision-makers.

The HRMIS should be seen as an integral part of the digital government infrastructure. This would allow full advantage to be taken of the benefits that different digital enablers, such as the interoperability framework and trust services, provide. Better integration of the HRMIS with these different enablers would help to streamline the HRM processes, broaden the user base and improve the user experience, while improving the quality of the data.

All these developments are not possible without further upskilling and reskilling of HR professionals in the related areas: data management and analysis, process management, digital government and emerging technologies. The HR staff need to be able to think in these categories in order to be able to drive the development activities required for better digitalisation of HRM processes.

Annex 1

Technical functionality questionnaire

HRMIS Digital Transformation Survey

SECTION 1

Dear Respondent,
This survey prepared by ReSPA in the form of a self-assessment framework regarding the digitalisation of the human resources in the Western Balkans public administrations, aims to identify advances in the digital transformation achieved so far regarding the management of human resources. In the first section of the survey there are questions about the Human Resources Management Information System (HRMIS) and in the following sections there are questions about the modules comprising the HRMIS or that are separate from the HRMIS but manage other processes in relation to human resources. The survey should be completed by the HR and IT departments that manage the HR systems and, ideally, only one response should be submitted by each administration. Depending on the modules that you have in place, the survey should take around 20 minutes to complete.

* Required

1. Administration

Mark only one oval.

⬭ Albania
⬭ Bosnia and Herzegovina – BiH institutions
⬭ Bosnia and Herzegovina – Federation of Bosnia and Herzegovina
⬭ Bosnia and Herzegovina – Republika Srpska
⬭ Montenegro
⬭ North Macedonia
⬭ Serbia – OLD SYSTEM
⬭ Serbia – NEW SYSTEM

2. Institutions (use commas to add more than one)

_____

3. Your names (use commas to add more than one)

Contacts

4. Phone numbers (use commas to add more than one)

_____

5. E-mails (use commas to add more than one)

_____

HRMIS

6. Where is the HRMIS hosted? (Please check relevant answers)

Mark only one oval.

⬭ Internally, within the institution

⬭ Internally, at the government data centre

⬭ Hosting outsourced

7. Is physical access controlled?

Mark only one oval.

⬭ Yes

⬭ No

⬭ Other: _____

8. Is the temperature adequately controlled?

Mark only one oval.

⬭ Yes

⬭ No

9. Do you have a "disaster recovery system"?

Mark only one oval.

⬭ Yes

⬭ No

10. Is there a service infrastructure in place to enable data exchange with other systems? If so, please elaborate in more detail.

_____

11. Is the system developed in-house? Please elaborate in more detail.

_____

12. If not, do you possess the source code of the system? Please elaborate in more detail.

_____

13. Do you maintain the system in-house? Please elaborate in more detail.

_____

14. If not, please specify the cost of annual system maintenance and please note what is included.

_____

Security

15. Do you have PKI infrastructure in place?

Mark only one oval.

⬭ Yes

⬭ No

16. If yes, is the PKI infrastructure outsourced or in-house?

Mark only one oval.

⬭ Outsourced

⬭ In-house

⬭ N/A

17. Please provide a short technical and functional description of the HRMIS.

18. Please explain the purpose of the HRMIS.

_____

19. What kind of authentication mechanism do you use in accessing personal record files? Please elaborate in more detail.

_____

20. Do you use systems with usernames and passwords?

Mark only one oval.

◯ Yes
◯ No

21. Do you use a domain controller?

Mark only one oval.

◯ Yes
◯ No

22. Is your system based on certificates?

Mark only one oval.

◯ Yes
◯ No

23. Do you have developed user-role-based policies with user rights? Please elaborate in more detail.

_____

24. Please check what is supported:

Check all that apply.

☐ Identification: All parties accessing the system must be able to identify themselves to the system.
☐ Authentication: There have to be procedures to verify the identity of the accessing party.
☐ Authorisation: Define set of transactions the authenticated party is allowed to perform.

☐ Integrity: Data must be accurate and complete over its entire lifecycle, meaning it cannot be modified in an unauthorised or undetected manner.
☐ Confidentiality: Information is not made available or disclosed to unauthorised individuals, entities or processes.
☐ Auditing: All transactions are recorded.
☐ Availability: The information must be available when it is needed
☐ Other: _____

System support for the HRM process

25. Scope of the HRMIS (central government)

Mark only one oval.

◯ All public employees, including, for example, schools and health sector
◯ Civil servants only
◯ Other: _____

26. Scope of the HRMIS (local government)

Mark only one oval.

◯ All public employees, including, for example, schools and health sector
◯ Civil servants only
◯ Other: _____

27. Data entry

Mark only one oval.

◯ Centralised institutional level
◯ Other: _____

28. How do you ensure data accuracy and quality? Please check all appropriate.

Check all that apply.

☐ By linking the HR register with the payroll
☐ Employee self-service
☐ Digitalising day-to-day processes
☐ Having written procedures about data accuracy
☐ Other: _____

29. What is the name of the HRMIS application and the website where it can be accessed?

_____

30. Please give a short functional description of the application.

_____

31. How many users approximately use the HRMIS?

_____

32. Which groups of users use HRMIS?

Check all that apply.

☐ All employees within the scope of the HRMIS
☐ IT administrators
☐ HR administrators
☐ Line managers
☐ Top-level managers
☐ Other:_____

33. Is HRMIS cloud-based and, if not, do you plan to move to the cloud? (Please explain)

_____

34. Do you use emerging technologies with your HRMIS (e.g. AI, machine learning, Blockchain etc.) and is there any discussion or training related to these technologies at your institution?

_____

35. How would you describe the user experience (UX) while using the HRMIS? Comment on usability, accessibility, etc. and describe what can possibly be improved.

_____

36. Level of digitalisation

Mark only one oval per row.

	Fully digital (no paper records needed)	Mostly digital (some paper records still needed)	Mostly paper-based (with some data digitalised)	Fully paper-based (no digital records stored in HRMIS)
Personal record management	⬭	⬭	⬭	⬭
Organisation and job classifications	⬭	⬭	⬭	⬭
Contract management and related rights	⬭	⬭	⬭	⬭
Administration of working time	⬭	⬭	⬭	⬭
Administration of allowances	⬭	⬭	⬭	⬭
Performance management	⬭	⬭	⬭	⬭
Records of disciplinary proceedings	⬭	⬭	⬭	⬭
Training and development	⬭	⬭	⬭	⬭
E-learning	⬭	⬭	⬭	⬭
E-recruitment	⬭	⬭	⬭	⬭
E-testing	⬭	⬭	⬭	⬭
Internal labour market, mobility	⬭	⬭	⬭	⬭
Employee self-service	⬭	⬭	⬭	⬭
Reporting and business intelligence	⬭	⬭	⬭	⬭

37. Please explain the major obstacles faced with the HRMIS:

_____

_____

_____

_____

_____

SECTION 2: Separate questionnaire for each HRMIS module [25]

38. Do you have this module in use? *

Mark only one oval.

⬯ Yes

⬯ Yes, the module is technically available but not used in practice

⬯ No

⬯ Items included in this module are covered by another module (please specify below)

⬯ Other:_____

39. Name of the application / module

_____

40. Integration with the HRMIS

Mark only one oval.

⬯ HRMIS module

⬯ Separate application

⬯ Other:_____

41. Scope (central government)

Mark only one oval.

⬯ All public employees, including, for example, schools and health sector

⬯ Civil service institutions only

⬯ Other:_____

42. Scope (local government)

Mark only one oval.

⬯ All public employees, including, for example, schools and health sector

⬯ Civil service institutions only

⬯ Other:_____

43. Number of users

_____

44. Data entry

Mark only one oval.

⬯ Centralised

⬯ Institutional level

⬯ Other:_____

45. Integration with the Government Service Bus (please specify the name of the interoperability framework)

_____

46. Interoperability with other databases

_____

25   Respondents were asked to answer about each module separately if the module is integrated in the HRMIS or used as a separate application. Each module had the same questionnaire as seen in the questions 38–53. The modules covered with this survey were: 1) personnel record management; 2) organisation and job classification; 3) contract management and related rights; 4) administration of working time; 5) administration of allowances; 6) performance management; 6) records of disciplinary proceedings; 7) training and development; 8) e-learning; 9) recruitment;10) testing; 11) the internal labour market; 12) employee self-service; and 13) reporting and business intelligence.

47. Availability of self-service

Mark only one oval.

- Yes
- No

48. If there is self-service, what is the level of sophistication of the e-services provided (within this module)?

Check all that apply.

- ☐ Informative only – information necessary to start the process of accessing the service available on the web
- ☐ Interactive, downloadable, printable or electronic forms to start the process of accessing the service available on the web
- ☐ Fully transactional – full electronic case handling of the procedure by the service provider including online payments
- ☐ Fully transactional and personalised – proactive, automated and personalised service delivery
- ☐ N/A
- ☐ Other: _____

49. Identification and authentication

Check all that apply.

- ☐ eID
- ☐ e-Authentication
- ☐ SSO
- ☐ Other: _____

50. Multi-channel provision

Check all that apply.

- ☐ Mobile
- ☐ E-mail
- ☐ Other: _____

51. Measuring user satisfaction

Check all that apply.

- ☐ Feedback option available on the completion of the transaction
- ☐ Regular surveys
- ☐ One-off irregular surveys
- ☐ Other: _____

52. Short functional description of the application

_____

53. Main obstacles faced

_____

Annex 2:
Data availability and quality questionnaire

Part 1: SIGMA Monitoring Assessment questionnaire

		Relevant data fields available in the HRMIS	Relevant data fields are used in practice	Entered data is complete and can be fully trusted in compiling reports for the entire civil service	Entered data is at least 90% complete in compiling reports for the entire civil service	Entered data is incomplete and cannot be trusted	A reporting function exists and reports for the entire civil service can be conducted easily and fully based on the HRMIS and related modules' data	A reporting function exists and the reports for the entire civil service can be conducted fully based on the HRMIS and related modules' data but would need some extra effort (data cleaning, verification, etc.)	Reporting is not possible solely based on the HRMIS and related modules' data and requires using other data resources manually	Where is the data retrieved? (HRMIS/ module, or any other database)
General statistics	1. Total number of civil servants employed in central government bodies at the end of the latest full calendar year									
General statistics	2. Breakdown by group/ category of positions, as foreseen by the classification from the civil service law									
General statistics	3. List of all institutions subject to the civil service legislation									
General statistics	4. Basic statistics on the composition of the civil servant workforce:									
General statistics	4.1. Senior civil servants									
General statistics	Number of civil servants employed at the end of the latest full calendar year									
General statistics	Number of civil servants employed at the beginning of the latest full calendar year									
General statistics	Number of women employed at the end of the latest full calendar year									
General statistics	4.2. Civil servants (non-senior)									
General statistics	Number of civil servants employed at the end of the latest full calendar year									
General statistics	Number of civil servants employed at the beginning of the latest full calendar year									

General statistics	Number of women employed at the end of the latest full calendar year								
Recruitment	**5. Recruitment data:**								
Recruitment	**5.1. Senior civil servants**								
Recruitment	Number of candidates who participated in competitions finished during the full calendar year								
Recruitment	Number of eligible candidates who participated in competitions finished during the latest full calendar year								
Recruitment	Number of vacancies offered in the competitions during the latest full calendar year								
Recruitment	Number of vacancies filled without competition during the latest full calendar year								
Recruitment	Number of appeals against recruitment decisions filed during the latest full calendar year								

Recruitment	Total number of appeal decisions in the latest full calendar year								
Recruitment	Number of appeal decisions in favour of the candidate in the latest full calendar year								
Recruitment	Number of appointments as a result of the competitions open to external candidates during the latest full calendar year								
Recruitment	Number of appointments as a result of the competitions open only to internal candidates (candidates working in the civil service) the latest full calendar year								
SCS	**5.2. Civil servants (non-senior)**								
SCS	Number of candidates who participated in competitions finished during the latest full calendar year open to external candidates								
SCS	Number of eligible candidates who participated in competitions finished during the latest full calendar year open to external candidates								

SCS	Number of vacancies offered in the competitions during the latest full calendar year open to external candidates								
SCS	Number of vacancies filled without competitions during the latest full calendar year								
SCS	Number of appeals against recruitment decisions filed during the latest full calendar year open to external candidates								
SCS	Total number of appeal decisions in the latest full calendar year open to external candidates								
SCS	Number of appeal decisions in favour of the candidate in the latest full calendar year open to external candidates								
SCS	Number of appointments as a result of competitions open to external candidates during the latest full calendar year								
SCS	Number of appointments as a result of competitions open only to internal candidates (candidates working in the civil service) during the latest full calendar year								

Mobility	6. Statistics on the number of civil servants that were appointed in the year prior to the latest full calendar year in the government administration, which includes ministries and other institutions subordinate or reporting to ministers, the prime minister or the government and who left within 12 months								
Dismissals	7. Statistics (latest full calendar year) on termination of employment decisions affecting all civil servants and senior civil servants of the central government administration which includes ministries and other institutions subordinate or reporting to ministers, the prime minister or the government								
Dismissals	Reasons for termination as specified in national legislation								

Dismissals	Number of officials whose employment was terminated – civil servants (excluding senior civil servants)								
Dismissals	Number of officials whose employment was terminated – senior civil servants								
Dismissals	Total number of officials whose employment was terminated								
SCS	**8. Total number of senior civil servants for the government administration which includes ministries and other institutions subordinate or reporting to ministers, the prime minister or the government**								
SCS	Who left their position during the latest full calendar year								
SCS	Who left their position in the year prior to the latest full calendar year								
SCS	Who left their position during the year in which the current government was formed								

SCS	Who were in employment at the beginning of the calendar year in which the current government was formed								
SCS	Who left their position during the full calendar year after the year of the formation of the current government								
SCS	Who were in employment at the beginning of the first full calendar year after the year of the formation of the current government								
SCS	Who left their positions within six months of the date of the formation of the current government								
SCS	Who were in employment on the day preceding the formation of the current government								
SCS	The number of acting senior civil servants at the end of the year prior to the latest full calendar year								
SCS	The number of acting senior civil servants at the end of the latest full calendar year								

Remuneration	9. Total gross annual salaries (total remuneration in the local currency) paid to civil servants (salary budget) in the latest full calendar year								
Remuneration	10. Average monthly gross salary for civil servants in government administration in the latest full calendar year								
Remuneration	11. Total expenditure (in the local currency) for bonuses in the latest full calendar year								
Remuneration	12. Number of civil servants working for the central government that received bonuses								
Performance appraisal	13. Performance appraisals:								
Performance appraisal	The number of civil servants eligible for appraisal in the latest full calendar year								
Performance appraisal	The number of civil servants appraised on the level (based on the assessment scale) in the latest full calendar year								
Performance appraisal	The total number of appraised civil servants in the latest full calendar year								

Training	14. The total government expenditure on civil service training (including both centrally provided training activities and the costs of training funded from the budgets of all public bodies) for the latest full calendar year								
Training	15. Number of civil servants that participated in training (at least once a year) financed by the state budget in the latest full calendar year								
Mobility	16. Number of seconded and transferred civil servants for the latest full calendar year for the central government body/bodies excluding horizontal transfers if within one institution, promotions and demotions								
Disciplinary	17. Number of disciplinary procedures finalised in the latest full calendar year by type of offence according to the legislation								

Disciplinary	18. Total number of disciplinary procedures finalised in the latest full calendar year									
Disciplinary	19. Number of disciplinary sanctions in the latest full calendar year. Provide the total figure and a breakdown by the type of sanction (use the categories established in the legislation)									
Disciplinary	20. Total number of disciplinary sanctions in the latest full calendar year									
Training	21. List of all training organised/procured by the civil service central co-ordinating body during the latest full calendar year									

Part 2: OECD Strategic HRM Questionnaire

		Data availability		Data quality			Data reporting			Database
		Relevant data fields available in the HRMIS	Relevant data fields are used in practice	Entered data is complete and can be fully trusted in compiling reports for the entire civil service	Entered data is at least 90% complete in compiling reports for the entire civil service	Entered data is incomplete and cannot be trusted	A reporting function exists and reports for the entire civil service can be conducted easily and fully based on the HRMIS data	A reporting function exists and reports for the entire civil service can be conducted fully based on the HRMIS data but would need some extra effort (data cleaning, verification, etc.)	Reporting is not possible solely based on the HRMIS data and requires using other data resources manually	Where is the data retrieved? (HRMIS/ module, or any other database)
Dismissals	s. Total exit (turnover) data (Q_MX_ROW_619723)									
Dismissals	t. Retirements (Q_MX_ROW_619725)									
Dismissals	u. Resignations (Q_MX_ROW_619727)									
Dismissals	v. Dismissals (Q_MX_ROW_619729)									
General Statistics	q. Special leave used (Q_MX_ROW_619717)									
General Statistics	**Mobility, turnover and dismissals (Q_MX_619719)**									
General Statistics	**Q1. Please provide employment figures in the central public administration in total numbers in December 2015 (or the closest – please indicate) (Q_MX_620692)**									

General Statistics	Civil servants (Q_MX_ROW_620693)							
General Statistics	Indeterminate duration (Q_MX_620693_ST_620699)							
General Statistics	Fixed-term duration (Q_MX_620693_ST_620704)							
General Statistics	Other (please specify in the comment box below): (Q_MX_620693_ST_620709)							
General Statistics	Other public employees (Q_MX_ROW_620694)							
General Statistics	Indeterminate duration (Q_MX_620694_ST_620700)							
General Statistics	Fixed-term duration (Q_MX_620694_ST_620705)							
General Statistics	Other (please specify in the comment box below): (Q_MX_620694_ST_620710)							
General Statistics	Other, please specify (Q_MX_ROW_620696)							
General Statistics	Indeterminate duration (Q_MX_620696_ST_620701)							
General Statistics	Fixed-term duration (Q_MX_620696_ST_620706)							
General Statistics	Other (please specify in the comment box below): (Q_MX_620696_ST_620711)							
General Statistics	Q17. For each of the following categories please indicate whether standardised administrative data records exist at the central/federal level? (Q_MX_619679)							
General Statistics	Workforce composition (Q_MX_619680)							

General Statistics	a. Number of employees (Q_MX_ROW_619681)							
General Statistics	b. Level (e.g. grade, junior and senior staff, etc.) (Q_MX_ROW_619683)							
General Statistics	c. Function (e.g. profession) (Q_MX_ROW_619685)							
General Statistics	d. Age (Q_MX_ROW_619687)							
General Statistics	e. Gender (Q_MX_ROW_619689)							
General Statistics	f. Disabilities (Q_MX_ROW_619691)							
General Statistics	h. Level of education (Q_MX_ROW_619695)							
General Statistics	i. Length of service (Q_MX_ROW_619697)							
General Statistics	j. Languages spoken (Q_MX_ROW_619699)							
General Statistics	Employment arrangements (Q_MX_619701)							
General Statistics	k. Type of contract (e.g. civil servants vs others) (Q_MX_ROW_619703)							
General Statistics	l. Union membership (Q_MX_ROW_619705)							
General Statistics	m. Part-time (Q_MX_ROW_619707)							
General Statistics	Leave use (Q_MX_619711)							
General Statistics	o. Sick days used (Q_MX_ROW_619713)							
Mobility	r. Mobility within the civil service (Q_MX_ROW_619721)							

Mobility	**Q98. Please provide the number of employees in the central/national/federal administration who have changed positions, by filling in the following table [Q.89.] (Q_MX_622486)**									
Mobility	**CURRENT YEAR −1 (or latest year available) (Q_MX_ROW_622487)**									
Mobility	Number of employees who moved within the same department/ministry (Q_MX_622487_ST_622489)									
Mobility	Number of employees who have moved between departments/ministries (Q_MX_622487_ST_622491)									
Mobility	Number of employees who have temporarily moved outside of the civil service (Q_MX_622487_ST_622493)									
Mobility	Number of employees who have permanently left the civil service (Q_MX_622487_ST_624715)									
Mobility	**Q.48 What percentage of new recruitment leave the central public administration: (Q_MX_622146)**									
Mobility	Within 1 year? (Q_MX_ROW_622148)									
Mobility	Within 3 years? (Q_MX_ROW_622150)									
Mobility	Within the first 5 years? (Q_MX_ROW_622152)									

SCS	**Q.91 Please provide the number of senior managers in the central/national/federal administration who changed positions in CURRENT YEAR −1 (or most recent years available), by filling the following table: (Q_MX_622380)**								
SCS	**CURRENT YEAR −1, or latest year available (Q_MX_ROW_622383)**								
SCS	Number of senior managers who have moved between departments/ministries (Q_MX_622383_ST_622384)								
SCS	Number of senior managers who have moved outside of the senior civil service (Q_MX_622383_ST_622385)								
SCS	**Q.94 Typically, how many staff at each level are politically appointed? (Q_MX_622405)**								
SCS	**D1 (Q_MX_ROW_622408)**								
SCS	Total number of politically appointed staff at this level (Q_MX_622408_ST_622409)								
SCS	**D2 (Q_MX_ROW_622411)**								
SCS	Total number of politically appointed staff at this level (Q_MX_622411_ST_622412)								
SCS	**D3 (Q_MX_ROW_622414)**								
SCS	Total number of politically appointed staff at this level (Q_MX_622414_ST_622415)								
SCS	**D4 (Q_MX_ROW_622417)**								

SCS	Total number of politically appointed staff at this level (Q_MX_622417_ST_622418)								
SCS	**Advisors to the ministry's leadership (Q_MX_ROW_622426)**								
SCS	Total number of politically appointed staff at this level (Q_MX_622426_ST_622427)								
Training	p. Training days used (Q_MX_ROW_619715)								
Training	**Q69. What is the average length of training attended per year per employee [Q.95]? (Q_RB_622281)**								

Part 3: European Commission's Public Administration Reform Special Group meeting questionnaire

		Data availability		Data quality			Data reporting			Database
		Relevant data fields available in the HRMIS	Relevant data fields are used in practice	Entered data is complete and can be fully trusted in compiling reports for the entire civil service	Entered data is at least 90% complete for the entire civil service	Entered data is incomplete and cannot be trusted	A reporting function exists and reports for the entire civil service can be conducted easily and fully based on the HRMIS data	A reporting function exists and the reports for the entire civil service can be conducted fully based on the HRMIS data but would need some extra effort (data cleaning, verification, etc.)	Reporting is not possible solely based on the HRMIS data and requires using other data resources manually	Where is the data retrieved? (HRMIS/module, or any other database)
Dismissals	**5. Dismissals**									
Dismissals	5.1. Number of dismissals of public officials (Please, state concrete reasons for dismissal, such as: negative appraisal, etc.)									
Dismissals	Negative appraisal									
Dismissals	Disability pension									
Dismissals	Sentenced to prison for more than 6 months									
Dismissals	Death									
Dismissals	Resignation by the employee									
Dismissals	Dismissal by the employer									
Dismissals	By court ruling									
Dismissals	By mutual agreement									
Dismissals	Old-age pension									

Dismissals	Violation of the work order and discipline or work									
Dismissals	5.2. Number of appeals against dismissals									
Dismissals	Number of successful appeals									
General statistics	**7. Usage of temporary contracts**									
General statistics	Number of fixed-term contracts in the civil service									
General statistics	Number of fixed-term contracts that were further transformed into permanent contracts									
Mobility	**2. Transfers**									
Mobility	Number of transfers									
Mobility	**4. Promotions**									
Mobility	Number of promotions									
Performance appraisals	**3. Performance appraisals**									
Performance appraisals	Number of appraisals conducted									
Performance appraisals	Best possible appraisal grade									
Performance appraisals	2nd-best possible appraisal grade									
Performance appraisals	3rd-best possible appraisal grade									
Performance appraisals	Number of performances graded as 'not satisfactory'									
Performance appraisals	Implementation of performance appraisals									

Performance appraisals	Percentage (%) of institutions that have completed the performance appraisals								
Recruitment	**1. Procedures for filling vacant civil servant positions**								
Recruitment	**1.1. Number of conducted competitions to fill vacancies:**								
Recruitment	Public competitions								
Recruitment	Number of positions advertised in the these competitions:								
Recruitment	Public competitions								
Recruitment	Internal competitions								
Recruitment	Number of applications received for a published position:								
Recruitment	Public competitions								
Recruitment	Internal competitions								
Recruitment	**1.2. Number of eligible candidates that won the competitions/recruited candidates**								
Recruitment	Public competitions								
Recruitment	Internal competitions								
Recruitment	**1.3. Number of appeals against the outcome of recruitments**								
Recruitment	Number of successful (accepted) appeals								
Recruitment	Number of appeals withdrawn by the candidate								

Recruitment	Number of rejected appeals							
Recruitment	Number of implemented appeal decisions							
SCS	**6. Senior civil service**							
SCS	6.1. Number of conducted competitions to fill senior management vacancies							
SCS	Public competitions							
SCS	Internal competitions							
SCS	6.2. Number of positions advertised in the competitions							
SCS	Public competitions							
SCS	Internal competitions							
SCS	6.3. Average number of applications received for a published senior management position							
SCS	Public competitions							
SCS	Internal competitions							
SCS	6.4. Number of candidates that succeeded competitions/recruited candidates							
SCS	Public competitions							
SCS	Internal competitions							
SCS	6.5. Number of managers appointed without competitions if applicable (e.g. acting managers)							

SCS	6.6. Number of senior managers that were re-appointed after the expiration of their initial mandate							
SCS	Total number of re-appointments of senior civil servants							
SCS	6.7. Number of dismissals of senior managers based on negative appraisals							
SCS	Number of dismissals of senior managers (Please state concrete reasons for dismissals, such as: negative appraisal, etc.)							
SCS	Number of dismissals of senior managers based on negative appraisals							
SCS	Number of dismissals of senior managers based on _____(reason for dismissal):							
SCS	6.8. Number of implemented appeal decisions (by the concerned institutions)							

Part 4: Additional indicators suggested by ReSPA

		Relevant data fields available in HRMIS	Relevant data fields are used in practice	Entered data is complete and can be fully trusted in compiling reports for the entire civil service	Entered data is at least 90% complete in compiling reports for the entire civil service	Entered data is incomplete and cannot be trusted	A reporting function exists and reports for the entire civil service can be conducted easily and fully based on the HRMIS data	A reporting function exists and the reports for the entire civil service can be conducted fully based on the HRMIS data but would need some extra effort (data cleaning, verification, etc.)	Reporting is not possible solely based on the HRMIS data and requires using other data resources manually	Where is the data retrieved? (HRMIS/ module, or any other data-base)
General statistics	Maximum duration of the acting appointment status (with names)									
Remuneration	Average monthly gross salary for civil servants in government administration in the latest full calendar year by different categories/ranks/job families									
Remuneration	Average monthly gross salary for civil servants in government administration in the latest full calendar year by gender									

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Annex 3:
Self-assessment framework

HRMIS Self-Assessment Framework

This self-assessment framework prepared by ReSPA regarding the digitalisation of human resources in the Western Balkans public administrations, aims to identify advances and progress in the digital transformation achieved so far regarding the management of human resources. In the first section of the survey there are questions about the Human Resources Management Information System (HRMIS) and in the following sections there are questions about the modules comprising the HRMIS or that are separate from the HRMIS but manage other processes in relation to human resources. The HR and IT departments that manage the HR systems can complete this self-assessment.

HRMIS Security		
1. Is physical access controlled?		
Desired outcome: It is good practice for the <u>HRMIS to be hosted in a secure location where physical access is controlled</u>.		
Yes	Partially	No
Short description of the state of play:		
2. Is the temperature adequately controlled?		
Desired outcome: It is good practice for the <u>HRMIS to be hosted in a secure location where there is air cooling and the temperature is monitored constantly, by sending automatic notifications if the temperature rises above the threshold</u>.		
Yes	Partially	No
Short description of the state of play:		

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3. Is there a "disaster recovery system"?

Desired outcome: It is good practice for there to be a disaster recovery system for the security and backing up of data for the HRMIS.

Yes	Partially	No

Short description of the state of play:

4. Is there a service infrastructure in place to enable data exchange with other systems?

Desired outcome: It is good practice for there to be a service infrastructure in place in order to enable interoperability and data exchange for the HRMIS with other systems.

Yes	Partially	No

Short description of the state of play:

5. Do you possess the source code of the HRMIS?

Desired outcome: It is good practice to have the source code of the systems in order to be able, if needed, to modify functionalities or add new features.

Yes	Partially	No

Short description of the state of play:

6. Do you have a Public Key Infrastructure (PKI) in place?

Desired outcome: It is good practice for a PKI to be completely in place for the HRMIS. This enhances the security and control of data operations.

Yes	Partially	No

Short description of the state of play:

7. Do you have an authentication mechanism that you use in accessing personal record files?

Desired outcome: It is good practice to have an authentication system in order to access personal record files. A system with usernames and passwords is considered a one-factor-authentication mechanism. However, there can be two- or even three-factor-authentication mechanisms.

Yes	Partially	No

Short description of the state of play:

8. Is your system based on digital certificates?

Desired outcome: Ideally your system should use digital certificates in order to access personal record files and data from the HRMIS. This would significantly enhance the cybersecurity of the HRMIS.

Yes	Partially	No

Short description of the state of play:

9. Have you developed user-role-based policies with user rights?

Desired outcome: It is good practice to have user-role policies that would determine which users have access to which data on the HRMIS.

Yes	Partially	No

Short description of the state of play:

10. Does your system support identification, authentication, authorisation, integrity, confidentiality, auditing and availability?

Desired outcome: It is good practice for the HRMIS to support all these features. Identification means that all parties accessing the system must be able to identify themselves to the system. Authentication means that there have to be procedures to verify the identity of the accessing party. Authorisation means that there is a defined set of transactions that the authenticated party is allowed to perform. Integrity means that data must be accurate and complete over its entire life cycle, meaning they cannot be modified in an unauthorised or undetected manner. Confidentiality means that information is not made available or disclosed to unauthorised individuals, entities or processes. Auditing means that all transactions are recorded. Availability means that the information must be available when it is needed.

Yes	Partially	No

Short description of the state of play:

11. Does the scope of the HRMIS include all public employees at the central and local levels?

Desired outcome: The HRMIS should include all public employees at the central and local levels in order to ensure broad usage and completeness of data.

Yes	Partially	No

Short description of the state of play:

12. Is data entry to HRMIS possible at the institutional level?		
Desired outcome: Data entry to HRMIS should be possible at the institutional level in order to ensure broad usage and completeness of data. This would require professional HR staff at the institutional level who are able to work with the system and keep the data up-to-date.		
Yes	Partially	No
Short description of the state of play:		

13. Do you ensure data accuracy and quality?		
Desired outcome: It is good practice to ensure data accuracy and quality by linking the HR register with the payroll, by digitalising day-to-day processes, by having written procedures about data accuracy and by having employee self-service.		
Yes	Partially	No
Short description of the state of play:		

14. Do all groups of users use the HRMIS?		
Desired outcome: Ideally, all employees within the scope of the HRMIS should use the HRMIS, including and not limited to: IT administrators, HR administrators, line managers and top-level managers.		
Yes	Partially	No
Short description of the state of play:		

15. Do you use emerging technologies with your HRMIS?		
Desired outcome: Emerging technologies include AI (artificial intelligence), ML (machine learning), Blockchain, the cloud, etc. that would enhance data usage and would lead to data-driven human resource management and development.		
Yes	Partially	No
Short description of the state of play:		

16. Is the user experience (UX) monitored or measured?		
Desired outcome: It is good practice to monitor and measure the user satisfaction of the HRMIS, the usability, accessibility, user experience, ease of use and ease of learning how to use the HRMIS.		
Yes	Partially	No
Short description of the state of play:		

17. What is the level of digitalisation of the HRMIS?		
Desired outcome: Ideally, all procedures and processes should be fully digital.		
Yes	Partially	No
Short description of the state of play:		

Module: Personal record management		
18. Is this module integrated with the HRMIS?		
Desired outcome: It is good practice for this module to be part of or integrated with the HRMIS.		
Yes	Partially	No
Short description of the state of play:		

19. Does the scope of this module include all public employees at the central and local levels?		
Desired outcome: The module should include all public employees at the central and local levels in order to ensure broad usage and completeness of data.		
Yes	Partially	No
Short description of the state of play:		

20. Is data entry to this module possible at the institutional level?		
Desired outcome: Data entry to the module should be possible at the institutional level in order to ensure broad usage and completeness of data.		
Yes	Partially	No
Short description of the state of play:		

21. Is this module integrated with the Government Service Bus (or any other interoperability framework)		
Desired outcome: The module should be integrated with the Government Service Bus or any other interoperability framework that is in place to ensure the "once only" principle, to increase user-centricity and data quality.		
Yes	Partially	No
Short description of the state of play:		

22. Is the module interoperable with other databases?		
Desired outcome: It is good practice for the module to be interoperable with any other databases to ensure the "once only" principle, to increase user-centricity and data quality.		
Yes	Partially	No
Short description of the state of play:		

23. Is self-service available for this module?		
Desired outcome: It is good practice for there to be a self-service, which would be a feature that provides the employees with access to their records, enables them to handle a number of HR and administrative tasks, such as applying for leave and similar. Self-service would help to decrease the workload of HR staff in entering data and improve the quality of the data.		
Yes	Partially	No
Short description of the state of play:		

24. Is identification and authentication provided for this module?		
Desired outcome: It is good practice for the module to support these features. Identification and authentication should be provided for the module. <u>Identification</u> means that all parties accessing the system must be able to identify themselves to the system. <u>Authentication</u> means that there have to be procedures to verify the identity of the accessing party.		
Yes	Partially	No
Short description of the state of play:		

25. Is multi-channel service provision supported?		
Desired outcome: It is good practice for the module to support multi-channel provisions. This means that the service would be available through: the web, mobile, email, SMS, etc. i.e. multi-channel service provision.		
Yes	Partially	No
Short description of the state of play:		

26. Is user satisfaction measured?		
Desired outcome: It is good practice to monitor and measure the user satisfaction of the module, usability, accessibility, user experience, ease of use and ease of learning how to use this module.		
Yes	Partially	No
Short description of the state of play:		

Module: Organisation and job classification		
27. Is this module integrated with the HRMIS?		
Desired outcome: It is good practice for this module to be part of or integrated with the HRMIS.		
Yes	Partially	No
Short description of the state of play:		

28. Does the scope of this module include all public employees at the central and local levels?

Desired outcome: The module should include all public employees at the central and local levels in order to ensure broad usage and completeness of the data.

Yes	Partially	No

Short description of the state of play:

29. Is data entry to this module possible at the institutional level?

Desired outcome: Data entry to the module should be possible at the institutional level in order to ensure broad usage and completeness of the data.

Yes	Partially	No

Short description of the state of play:

30. Is this module integrated with the Government Service Bus (or any other interoperability framework)?

Desired outcome: The module should be integrated with the Government Service Bus or any other interoperability framework that is in place.

Yes	Partially	No

Short description of the state of play:

31. Is the module interoperable with other databases?

Desired outcome: It is good practice for the module to be interoperable with any other databases.

Yes	Partially	No

Short description of the state of play:

32. Is self-service available for this module?

Desired outcome: It is good practice for there to be self-service, which would be a feature that provides employees with access to their records, enables them to handle a number of HR and administrative tasks, such as applying for leave or similar.

Yes	Partially	No

Short description of the state of play:

33. Is identification and authentication provided for this module?

Desired outcome: It is good practice for the module to support these features. Identification and authentication should be provided for the module. Identification means that all parties accessing the system must be able to identify themselves to the system. Authentication means that there have to be procedures to verify the identity of the accessing party.

Yes	Partially	No

Short description of the state of play:

34. Is multi-channel service provision supported?

Desired outcome: It is good practice for the module to support multi-channel provisions. This means that service would be available through the web, mobile, email, SMS, etc., i.e. multi-channel service provision.

Yes	Partially	No

Short description of the state of play:

35. Is user satisfaction measured?

Desired outcome: It is good practice to monitor and measure the user satisfaction of the module, its usability, accessibility, user experience, ease of use and ease of learning how to use this module.

Yes	Partially	No

Short description of the state of play:

Module: Contract management and related rights		

36. Is this module integrated with the HRMIS?

Desired outcome: It is good practice for this module to be part of or integrated with the HRMIS.

Yes	Partially	No

Short description of the state of play:

37. Does the scope of this module include all public employees at the central and local levels?

Desired outcome: The module should include all public employees at the central and local levels in order to ensure broad usage and completeness of the data.

Yes	Partially	No

Short description of the state of play:

38. Is data entry to this module possible at the institutional level?

Desired outcome: Data entry to the module should be possible at the institutional level in order to ensure broad usage and completeness of the data.

Yes	Partially	No

Short description of the state of play:

39. Is this module integrated with the Government Service Bus (or any other interoperability framework)

Desired outcome: The module should be integrated with the Government Service Bus or any other interoperability framework that is in place.

Yes	Partially	No

Short description of the state of play:

40. Is the module interoperable with other databases?

Desired outcome: It is good practice for the module to be interoperable with any other databases.

Yes	Partially	No

Short description of the state of play:

41. Is self-service available for this module?

Desired outcome: It is good practice for there to be self-service, which would be a feature that provides employees with access to their records, enables them to handle a number of HR and administrative tasks, such as applying for a leave or similar.

Yes	Partially	No

Short description of the state of play:

42. Is identification and authentication provided for this module?

Desired outcome: It is good practice for the module to support these features. Identification and authentication should be provided for the module. Identification means that all parties accessing the system must be able to identify themselves to the system. Authentication means that there have to be procedures to verify the identity of the accessing party.

Yes	Partially	No

Short description of the state of play:

43. Is multi-channel service provision supported?

Desired outcome: It is good practice for the module to support multi-channel provisions. This means that service would be available through the web, mobile, email, SMS, etc., i.e. multi-channel service provision.

Yes	Partially	No

Short description of the state of play:

44. Is user satisfaction measured?

Desired outcome: It is good practice to monitor and measure the user satisfaction of the module, its usability, accessibility, user experience, ease of use and ease of learning how to use this module.

Yes	Partially	No

Short description of the state of play:

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