KPMG

Commission Secretary's Copy

Independent audit of the register of voters

Independent Electoral and Boundaries Commission – IEBC

IEBC/RFP/21/03/B/2021-2022/gk/bds/3

Audit Report

KPMG Advisory Services Limited

Final Audit Report

16 June 2022

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The information contained in this document is based on prevailing conditions and KPMG's view as of 16 June 2022.

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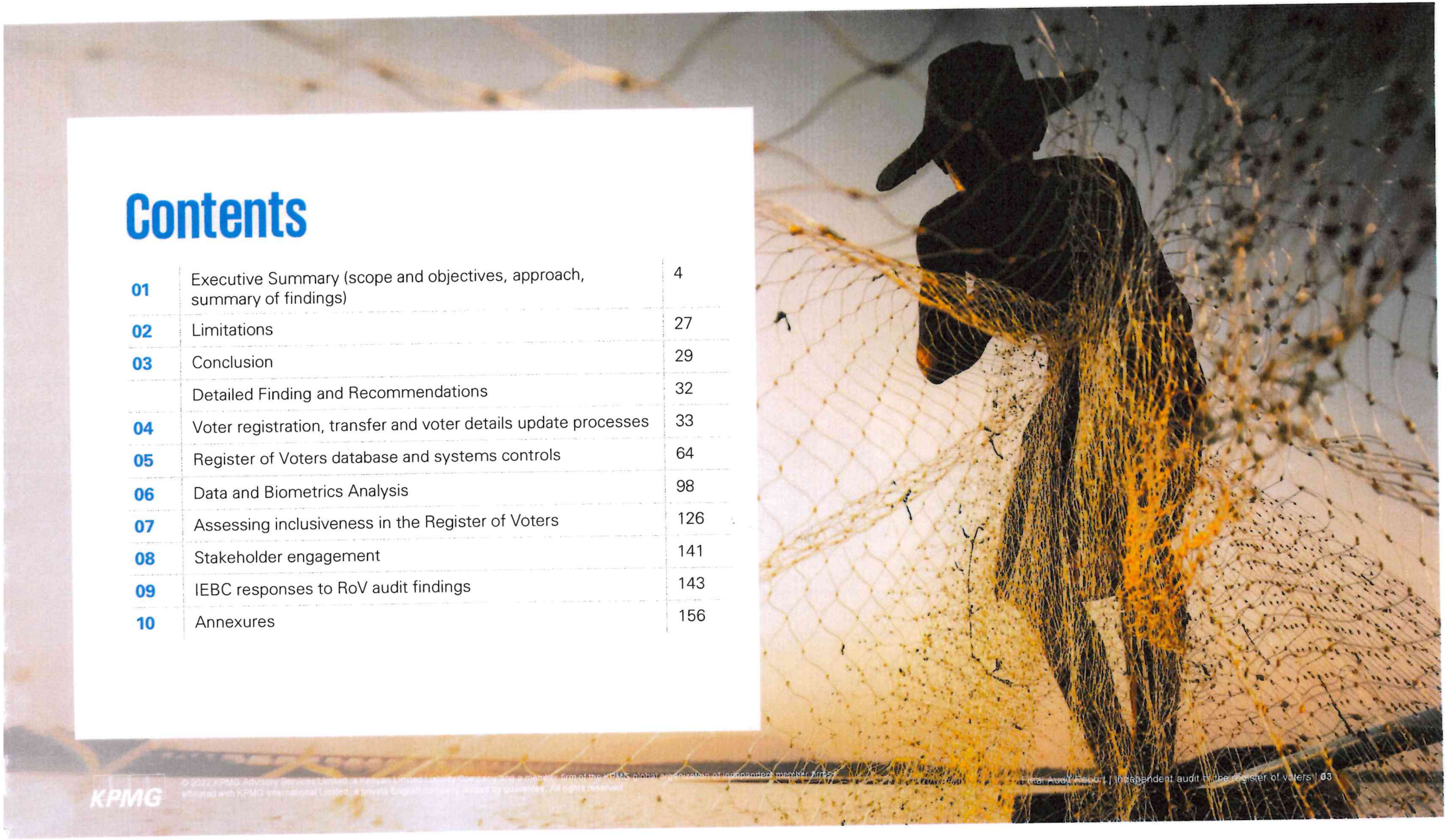

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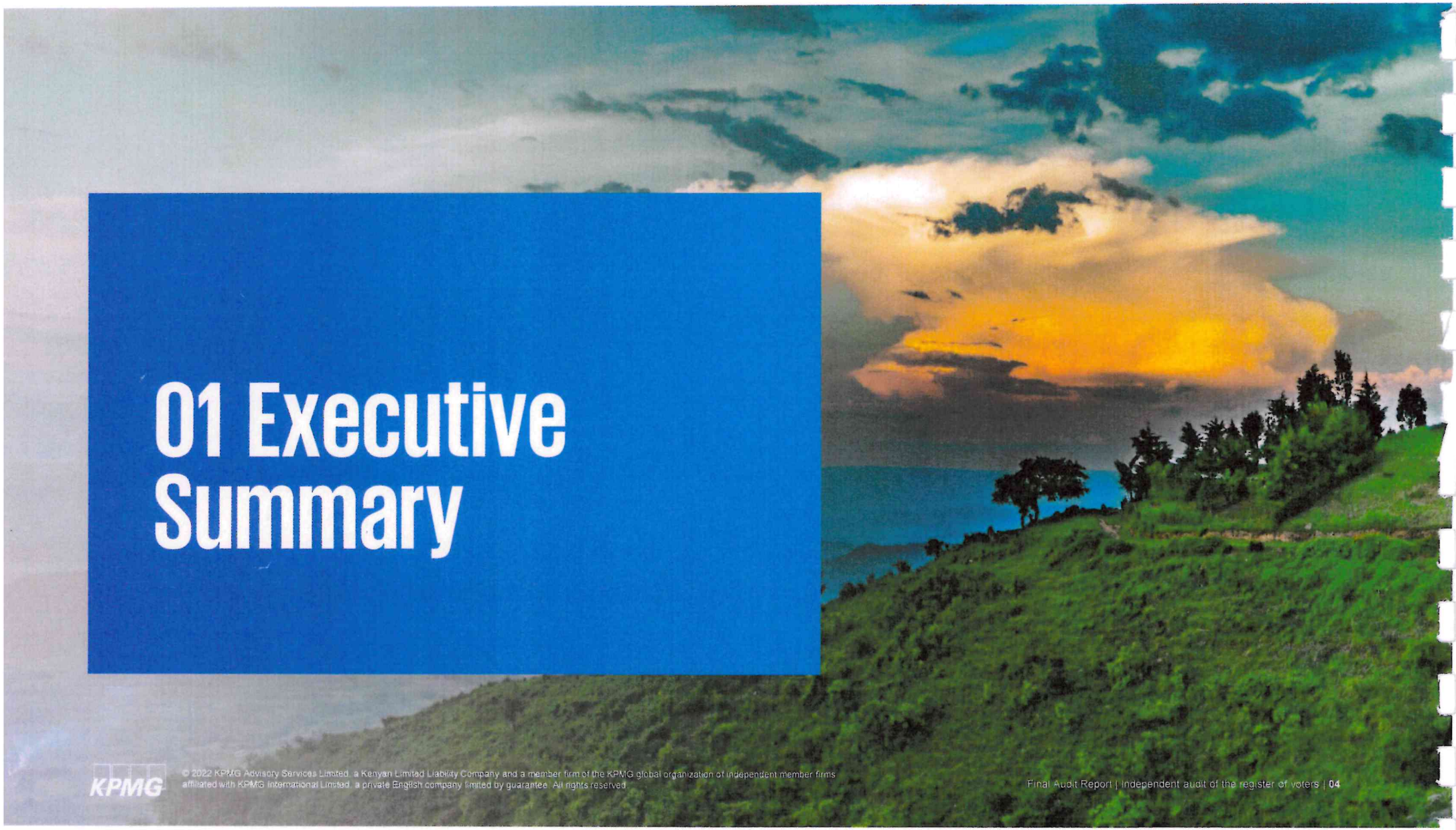

01 Executive Summary

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1.1 Objectives of the audit and terms of reference

The objective of the audit of the Register of Voters is to:

Assess the accuracy of the Register of Voters and recommend mechanisms for enhancing the accuracy and completeness of the Register of Voters.

Based on our experience in working with independent electoral bodies across various countries, the key issues we have considered in assessing Register of Voters are:

- **Accuracy:** correct voter's details are included in the Register of Voters in accordance with the applicable legal framework.
- **Inclusion and Completeness:** details of every person that presented themselves for registration are included in the Register of Voters.
- **Currency of the register:** the registry of voters is kept up-to date to cater accurately for changes in voter's details.

Terms of reference

- Review the voter registration process, transfer process, and voter details update processes and recommend improvements.
- Assess the accuracy of the register of voters in terms of completeness of the details of voters' data, matching of voters details (Biometrics) to the voter; occurrence of multiple entries and existence of deceased voters.
- Assess inclusiveness of the register of voters in relation to eligible voting population based on gender, age and geographic distribution.
- Propose mechanisms for enhancing the accuracy of the register of voters.
- Review and recommend improvement on existing mechanism for continuous update of the register of voters.

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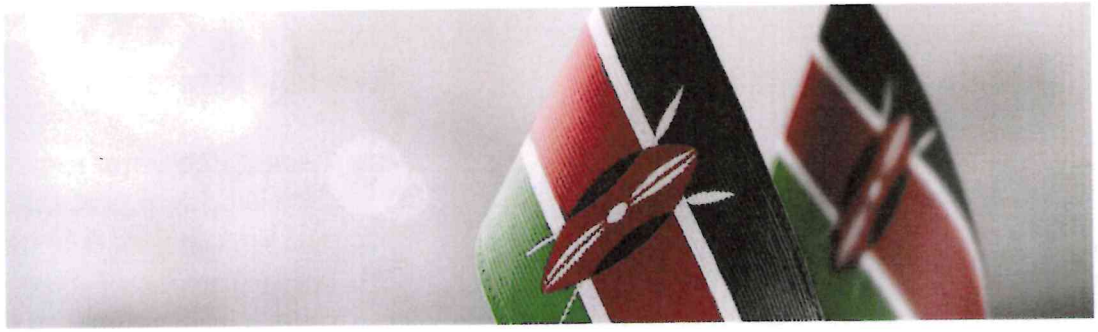
1.2 Scope

The audit of the register of voters has covered the following

The Register of Voters which includes:

- Certified Register of Voters as at 2020;
- Enhanced continuous voter registration (eCVR 1 and 2); and
- Continuous voter registration.



The following certified reference data (amongst others) has been used to compare with the register of voters:

- National Population Registry (from the National Registration Bureau);
- National Passports Registry, from the Department of Immigration;
- Register of Deaths from Civil Registration Services;
- National Population Data and current projections from Kenya National Bureau of Statistics; and
- Statistics on Kenyans in the diaspora from Ministry of Foreign Affairs.

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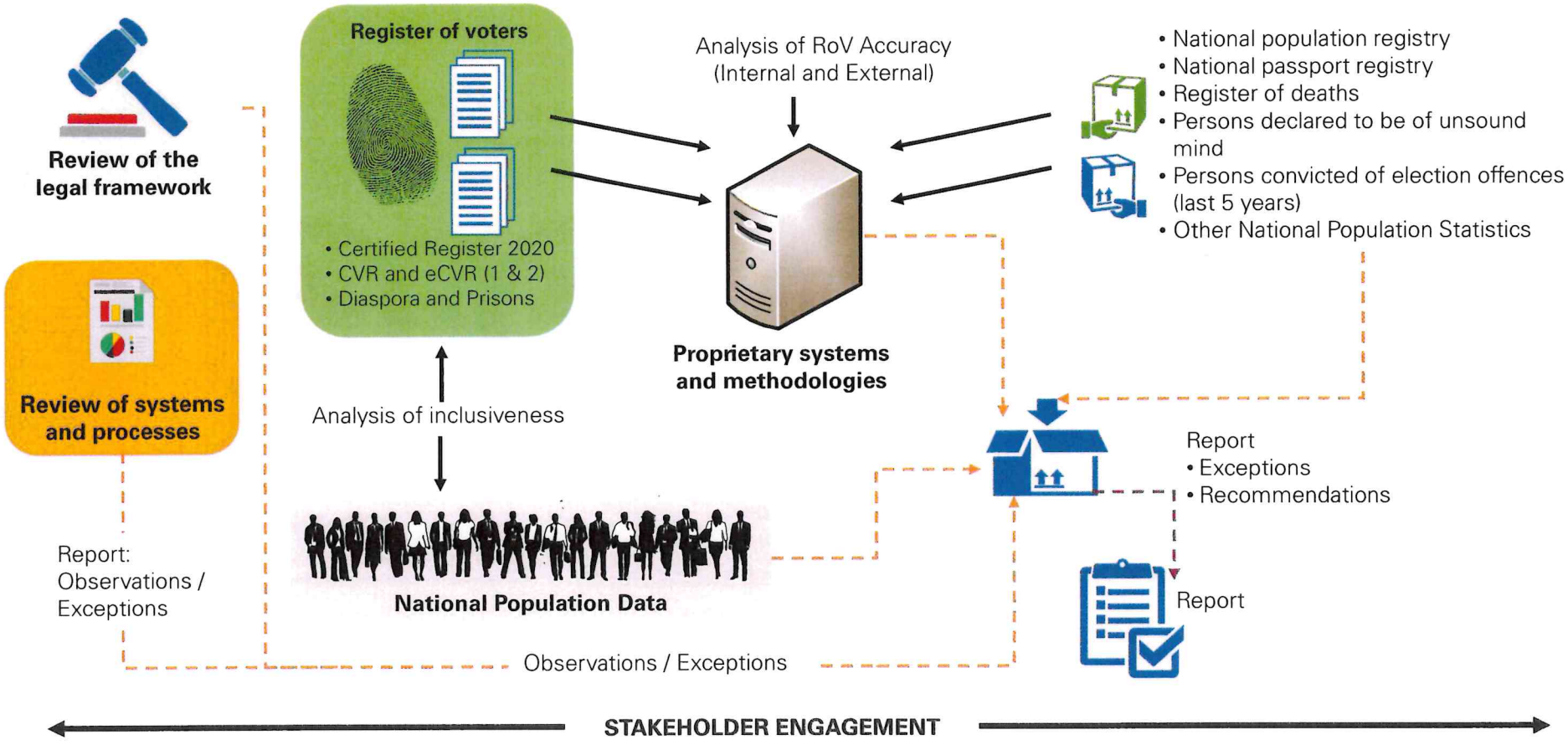
1.3 An overview of our audit approach and methodology



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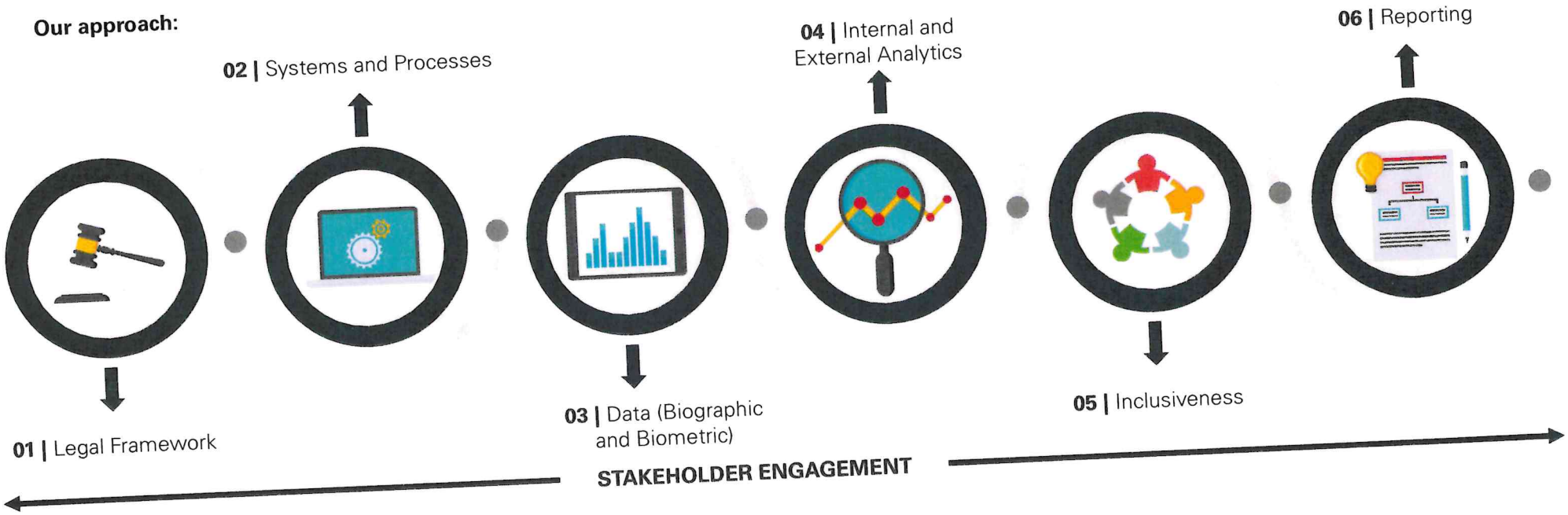
1.3.1 The six thematic elements that inform our approach and methodology



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1.4 Guidance

The audit methodology **is founded** on the Constitution of the Republic of Kenya and applicable laws including the Elections Act of 2011 as amended in 2017 (last amended by Act number 2 of 2022) and the Kriegler report.

THE CONSTITUTION

Of The Republic Of Kenya

ARTICLE 1 (2)
'The expression of the sovereign power of the people through democratic elections'

ARTICLE 10
'Binding national values and principles of governance expected from democratic elections'

ARTICLE 38
'The freedom to make political choices and the requirements for registration as a voter'

ARTICLE 81
'The provision on universal suffrage and that on free and fair election criteria'

ARTICLE 83
'The criteria that one has to meet to qualify to be registered as a voter'

ARTICLE 260
'Adult' and
ARTICLE 12
"On entitlements of citizens to a passport and registration documents"

ARTICLE 88
'Establishment of the IEBC and its role with regard to the continuous registration of voters and regular revision of the voters roll'

ARTICLE 249
'Independence of the IEBC, not subject to direction or control by any person or authority; protect sovereign power of the people'

ARTICLE 86
'Whichever voting method is used, the system is simple, accurate, verifiable, secure, accountable and transparent

ARTICLE 27
"The state shall not discriminate directly or indirectly against any person on any ground"

ARTICLE 21
'All state organs and all public officers have the duty to address the needs of vulnerable groups within society'

VERIFICATION
'The need to verify every single name in the register of voters against the Register of Persons, the National Passports Register and the Register of Deaths'

THE KREIGLER REPORT
'Which noted that without a credible, clean and verified register of voters the people of Kenya are denied their right to exercise their sovereign power'

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1.4 Guidance

ELECTIONS ACT, NUMBER 24 OF 2011

Last amended by Act number 2 of 2022

ELECTIONS (REGISTRATION OF VOTERS) REGULATIONS, 2012

as amended in 2017

SECTION 3
"On right to vote and a precondition on being registered as a voter"

SECTION 4
"Commission to prepare a Register of Voters which shall comprise of poll register, ward register, constituency register, county register, and register of voters residing outside Kenya"

SECTION 5
"Registration of voters and revision of the register at all times except in case of general election, by election and referendum"

SECTION 6
"Inspection of the Register, within 90Days of the notice of general election"
SECTION 6A
"Verification of Biometrics Data, 60 days before general election"

Section 8(2)
"The Kenya Citizens and Foreign Nationals Management Service shall make available to the Commission the information held by it in the national population register for the purpose of the conduct of an audit"

Section 8A
"Audit of the Register of Voters:
a) verifying the accuracy of the Register;
(b) recommending mechanisms of enhancing the accuracy of the Register; and updating the register"

Section 11-12
"Persons missing from the register may submit a claim to the Registration Officer for the name to be included in the register"

Section 5 (3)
"Documents to be used at registration"

Section 7
"Transfer of Registration"
Regulation 13C –
"Transfer of Registration"

Regulation 27
"Inspection of Register"
Regulation 27A-27B
"Verification of the register of voters"

Regulation 34, 35 & 36
"Registration of Kenyan citizens residing out of Kenya"

Regulation 39A-,B,C,D
"Registration of citizens in Kenyan prisons"

Regulation 45-
"Alternative means of signification of Voter Registration because of physical inability, illness or illiteracy, a person cannot sign an application form"

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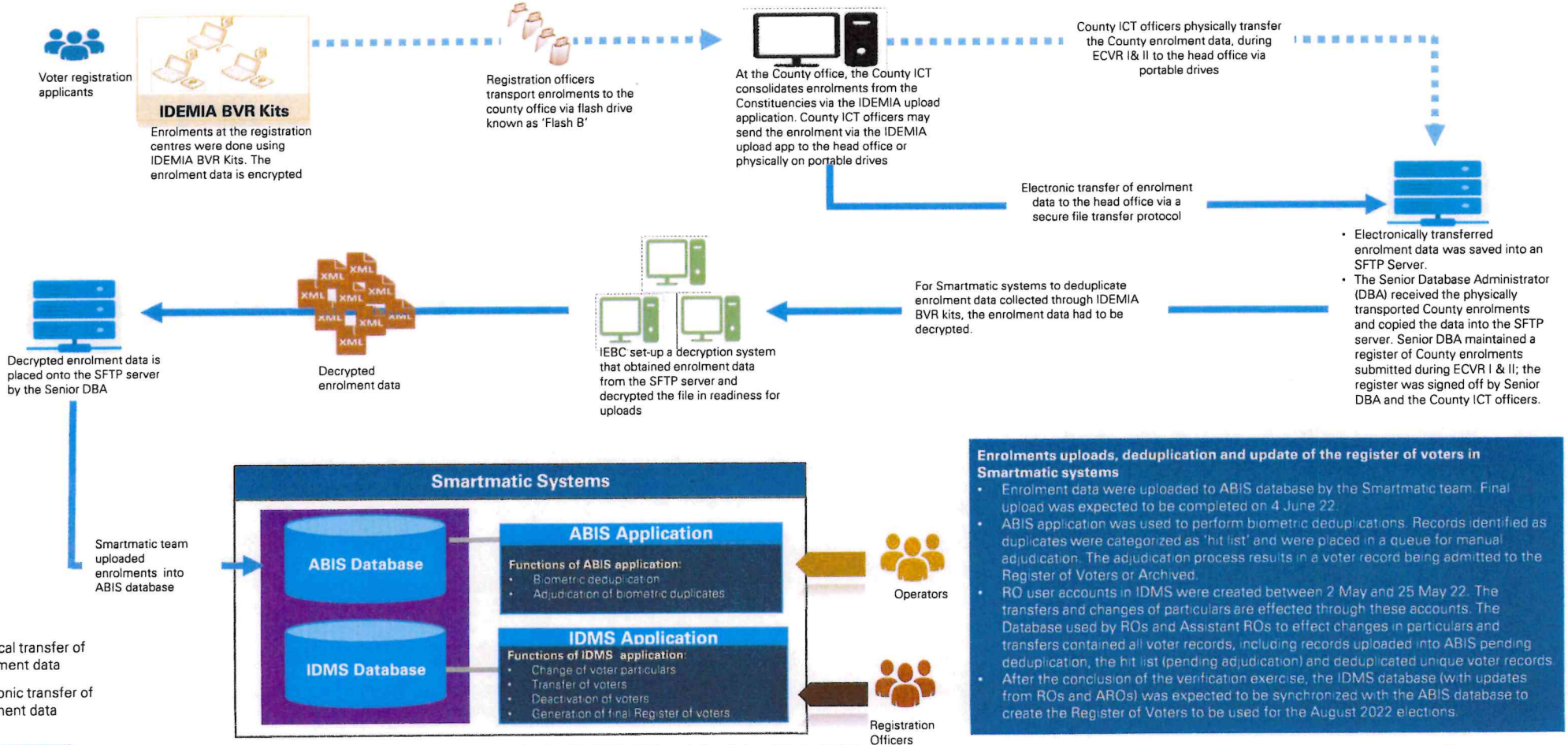
1.5 Overview of Voter Registration Process – Smartmatic – IDEMIA Systems



Enrolments uploads, deduplication and update of the register of voters in Smartmatic systems

- Enrolment data were uploaded to ABIS database by the Smartmatic team. Final upload was expected to be completed on 4 June 22.
- ABIS application was used to perform biometric deduplications. Records identified as duplicates were categorized as 'hit list' and were placed in a queue for manual adjudication. The adjudication process results in a voter record being admitted to the Register of Voters or Archived.
- RO user accounts in IDMS were created between 2 May and 25 May 22. The transfers and changes of particulars are effected through these accounts. The Database used by ROs and Assistant ROs to effect changes in particulars and transfers contained all voter records, including records uploaded into ABIS pending deduplication, the hit list (pending adjudication) and deduplicated unique voter records.
- After the conclusion of the verification exercise, the IDMS database (with updates from ROs and AROs) was expected to be synchronized with the ABIS database to create the Register of Voters to be used for the August 2022 elections.

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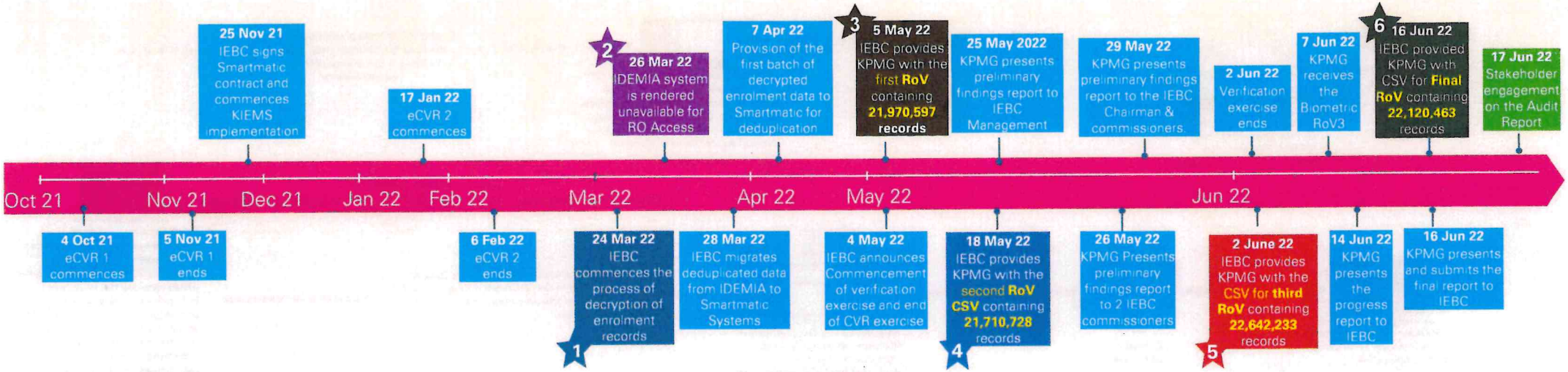
1.6 Key Activities - Timeline



1. To perform the deduplication of the pending voter enrolment records in the new system (Smartmatic system), the records had to be decrypted. On 24 March 2022, the Commission commenced the decryption process. The first batch of decrypted voter records was shared with Smartmatic on 7 April 2022. The process of decryption and provision of data to Smartmatic was ongoing at the time of the audit.
2. The IDEMIA system was decommissioned and RO access removed on 26 March 2022. This meant that new and pending voter requests for transfers and change of particulars could not be effected until the new system (Smartmatic) was deployed.
3. IEBC provided KPMG with the first RoV on 5 May 2022. The RoV contained 21,970,597 records comprising deduplicated voter records migrated from IDEMIA systems and un-deduplicated enrolment data collected during ECVR I, ECVR II and CVR exercises. The RoV was used for the statutory voter verification exercises which commenced on 4 May 2022.
4. IEBC provided KPMG with the second RoV on 18 May 2022. The RoV contained 21,710,728 records. The voter data in the RoV was deduplicated.
5. IEBC shared only the CSV file for RoV3 on 02 June 2022. The CSV file contains biographic particulars for 22,642,233 records. The RoV with biometric details was provided on 7 June 2022.
6. IEBC shared only the CSV file of the final RoV on 16 June 2022. The file contained 22,681,786 records of which "Master" i.e. valid voters were 22,120,463.

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1.7 Certification of the Rov and Government agencies data

Data certification is a key step in enabling identification and authenticity of the data received. In considering the certification criteria, KPMG focused on the key fields that can be used for record identification. The Commission provided datasets electronically and KPMG loaded them into the KPMG servers and verified thereafter that the data provided was accurately loaded. The verification criteria included hash totals and control totals. A summary of the data certified is noted below.

Certification	No of records provided	Date provided	Date of certification
The Commission Civil_Data Database used for migration from IDEMIA to Smartmatic	32,827,150	26 April 2022	20 May 2022
The Commission provisional RoV (.csv file) capturing Biographics	21,970,597	5 May 2022	05 May 2022
The Commission provisional RoV data dump	21,970,597	2 May 2022	19 May 2022
The Commission RoV2 (.csv file) capturing Biographics	21,710,728	18 May 2022	19 May 2022
The Commission RoV3 (.csv file) capturing Biographics	22,642,233	02 June 2022	02 June 2022
The Commission final RoV3 data dump	22,642,233	07 June 2022	07 June 2022
The Commission provided the final RoV (.csv file) capturing Biographics	22,120,463	16 June 2022	16 June 2022
Immigration data on Passports for registered voters provided by the Principal Registrar, DIS	57,620	03 June 2022	Pending
National Registration Bureau data for registered voters and statistics on issued IDs provided by Director, NRB	21,555,591 22,430,344	20 May 2022 03 June 2022	23 May 2022 16 June 2022
Register of Deaths for the period January 2017 to March 2022 provided by CRS	685,578	19 April 2022	10 May 2022
Register of Deaths for the period December 2012 to March 2017 provided by CRS	435,175	17 May 2017	17 May 2017

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1.7 Certification of the Rov and Government agencies data - continued

Data certification is a key step in enabling identification and authenticity of the data received. In considering the certification criteria, KPMG focused on the key fields that can be used for record identification. The Commission provided datasets electronically and KPMG loaded them into the KPMG servers and verified thereafter that the data provided was accurately loaded. The verification criteria included hash totals and control totals. A summary of the data certified is noted below.

Certification	No of records provided	Date provided	Date of certification
Vital statistics on expected and registered deaths for the period 2012 to 2022 from the Principal Registrar of Births and Deaths appointed under section 3 of the Births and Deaths Registration Act, duly certified by the Secretary, Civil Registration Services.	Expected deaths and Registered Deaths Statistics	03 June 2022	03 June 2022
List of persons convicted of electoral offences	-	Not provided	The commission sent out a letter to the Director, Directorate of Criminal Investigations dated 08 April 2022. In response we received a list of 59 persons convicted of electoral offences for the period 2017 to 2022. However these do not capture the identification number of the convicted persons.
List of persons declared to be of unsound mind	-	Not provided	The Director, Directorate of Medical Services in a letter dated 22 April 2022 indicated a list of persons declared of unsound mind was not available.

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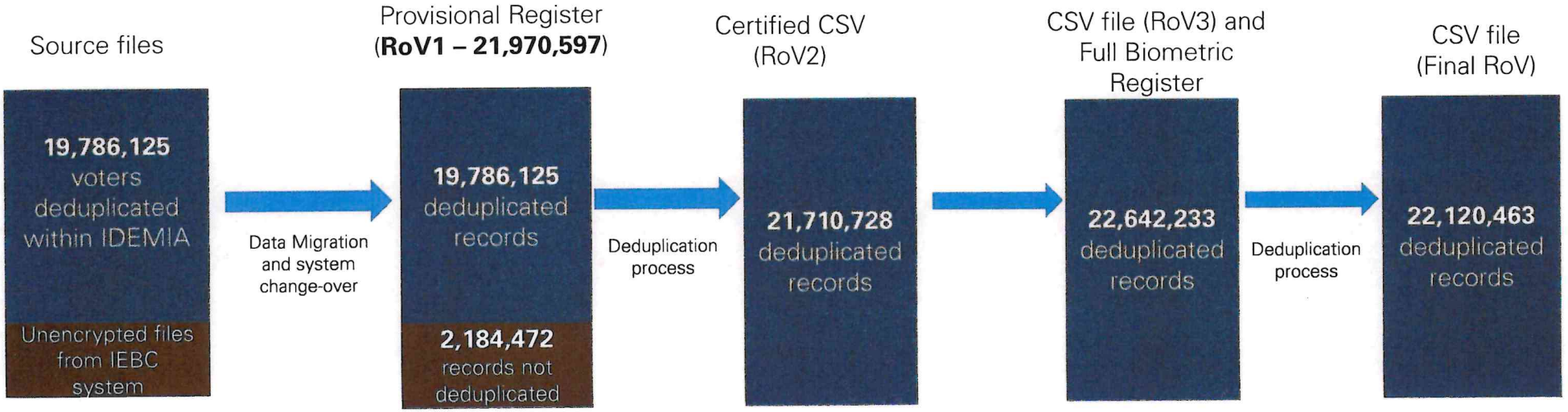
1.8 Understanding of the Smartmatic Register of Voters database

- KPMG requested IEBC for a certified register of voters for the purposes of the audit. The Register of voters to be used in the August 2022 elections comprises of voter records migrated from the legacy IDEMIA system and unencrypted files comprising of enrolment data from eCVR 1, eCVR2 and CVR uploaded from the IEBC system into the new Smartmatic system. The total records within Smartmatic Register of Voters that was provided to KPMG on **5 May 2022** was **21,970,597** records including all biographic and biometric details. This RoV1 was not fully deduplicated.
- Smartmatic undertook deduplication of the **2,184,472** records against the **21,970,597** records to generate a fully deduplicated register containing **21,710,728** voters. A CSV file containing this second version of the Register of Voters (RoV2) was provided to KPMG by IEBC on **18 May 2022**.
- Further, additional enrolment records were uploaded into the Register in the period 4 May 2022 to 2 June 2022 to generate a deduplicated Register of Voters. On **2 June 2022** IEBC provided KPMG with third version of the Register of Voters **(RoV3) in a CSV file** which contained **22,642,233** registered voters. The full Biometric records for ROV3 were subsequently provided **on 7 June 2022.**
- On **16 June 2022**, IEBC produced a final **RoV4 in a CSV file** which contained **22,120,463** registered voters. According to IEBC this RoV4 was updated to include any claims arising from the voter verification exercise, correction of irregularities previously reported with regard to processing of voter transfers, and correction of anomalies reported in the KPMG Audit Report.



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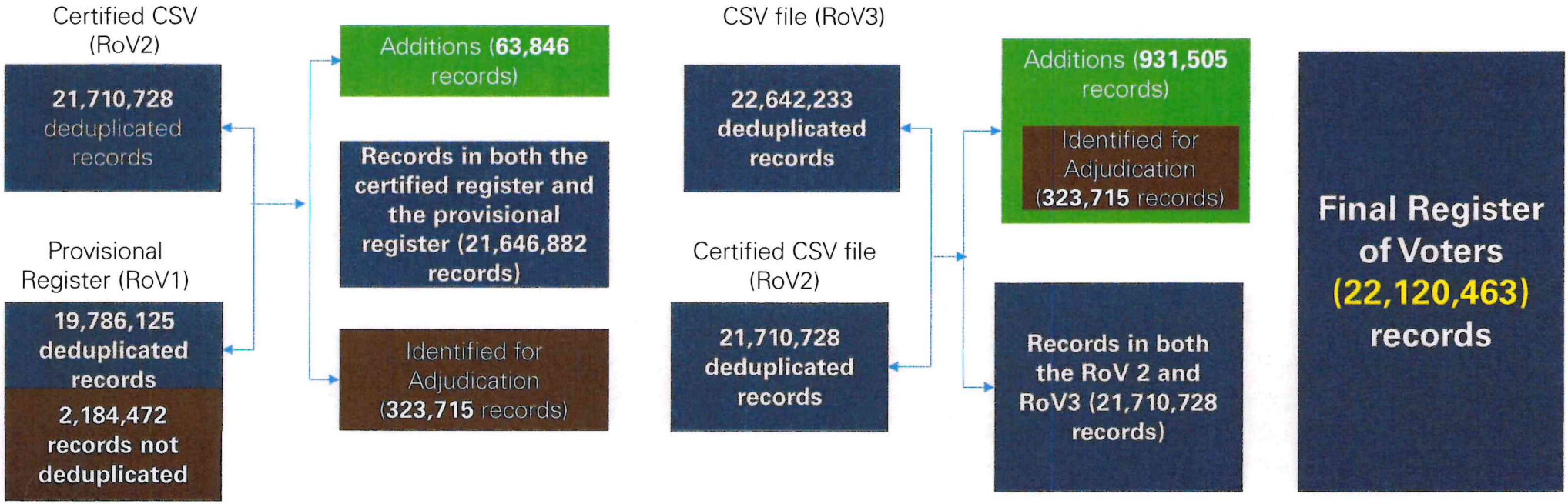
1.8 Understanding of the Smartmatic Register of Voters database

The Certified **RoV2 CSV file extract** was compared to the provisional register and we noted **63,846** new records and **323,715** records were missing from RoV2. The **323,715** records had been identified for adjudication after biometric deduplication.

The **CSV file (ROV3)** was compared to the **certified RoV2 CSV file** and we noted **931,505** new records**. 325,715** which had been previously identified for adjudication and were missing in the **RoV2 CSV extract** were now included as part of additions in **RoV3 extract**.



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Executive Summary

National Enrolment Rate in the 2022 RoV (KNBS)

79.41%

PWD Enrolment Rate in the 2022 RoV (KNBS)

18.94%

Female Enrolment Rate in the 2022 RoV (KNBS)

76.15%

Male Enrolment Rate in the 2022 RoV (KNBS)

82.83%

(18-34) Youth Enrolment Rate in the 2022 RoV (KNBS)

59.44% overall enrolment rate for youth. Male youth enrolment rate at **64.32%**. Female youth enrolment rate at **54.87%**

(18-19) Youth Enrolment Rate in the 2022 RoV (KNBS)

5.57% overall enrolment rate for youth between ages 18 and 19. **116,468** registered youth against **2,090,258** eligible youth between ages 18 and 19

Diaspora Enrolment Rate in the 2022 RoV (KNBS)

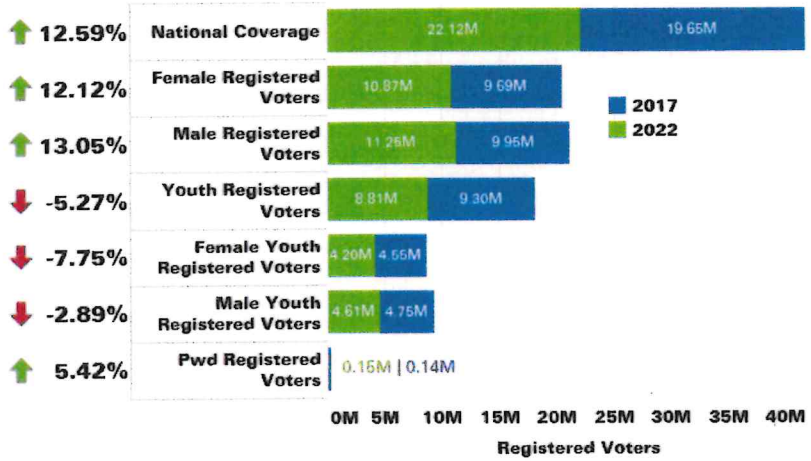
1.56% out of the Kenyans living in diaspora have enrolled in the 2022 RoV

Prisons Enrolment Rate in the 2022 RoV (KNBS)

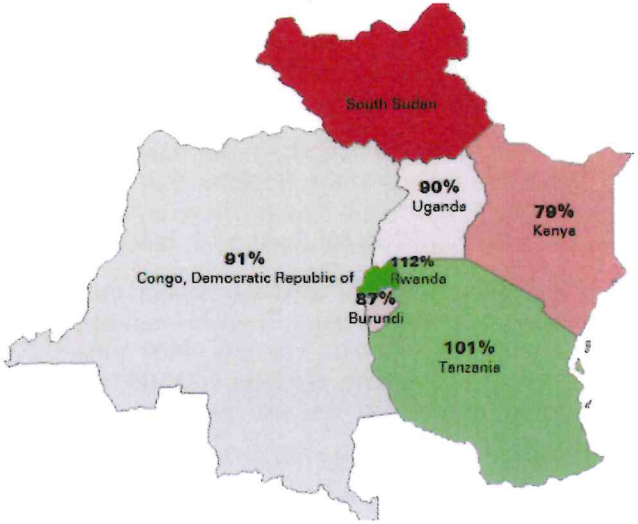
11.43% of eligible persons in prison enrolled in 2022 RoV

Change Post 2017

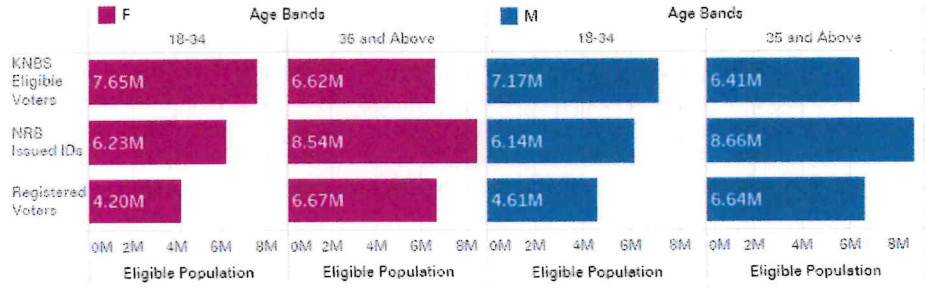
RoV Statistics Summary



East African Community Countries' Enrolment Rate



Female Distribution by Age



Male Distribution by Age

1.9 Key findings as at 8 June 2022

The findings reported herein cover the results of our audit based on the Register of Voters (RoV1, RoV2 , RoV3) and reflect the state of the Register as at 2 June 2022.

The Register of Voters, Version 3 (RoV3) containing biographic data only was availed to KPMG on 2 June 2022. A full data backup of the corresponding biometric details of registered voters as at this date were downloaded and availed to KPMG on 7 June 2022. The results of our audit as outlined in this final report take into account our analysis of the full Register and detailed audit procedures of the biographic and biometric records in the Register.

- It is our understanding from our meeting with the Commission on 5 June 2022 and 14 June 2022, that there are subsequent changes and updates that have been made in the Register that was provided to KPMG on 2 June 2022 arising primarily from processing of claims arising from the voter verification exercise that will have a material impact on the Register of Voters. These updates were subsequently processed after the register was provided to KPMG for audit on 2 June 2022.
- During the period of voter verification on 4 May 2022 to 2 June 2022, the Commission identified certain irregularities with regards to processing of voter transfers in the Register. The Commission embarked on a comprehensive quality assurance initiative targeting transfers in the Register and instructed Registration Officers to review voter transfers within their areas of jurisdiction and process corrections of any anomalies identified during the voter verification exercise. Updates relating to processing of voter transfers were not completed and were not included in RoV3 which was provided to KPMG, and hence have not been included in the scope covered by the KPMG Audit as at 8 June 2022.
- KPMG has requested the IEBC to make available the final biometric register of voters, containing ALL updates made by Registration Officers during the voter verification period, and all voter transfers processed in the Register. By the time of this report, this information which has material impact on the final certified register of voters to be used in the elections in August 2022 and thus a material impact on the results of the audit was still pending as at 8 June 2022.
- KPMG issued a preliminary report of the audit to IEBC on 2 June 2022 containing the interim results of the audit and made recommendations to address reported findings as at that date. We discussed the findings with the Commission on 5 June 2022 and on 8 June 2022. We provided detailed annexures of all exceptions and deficiencies in internal controls identified with specific recommendations on required updates in the Register. It is our understanding that the Commission embarked on remediation measures to update the Register subsequent to the date of issuing our preliminary report. We draw attention to the fact the recommended updates are expected to have a material impact on the total number of validly registered voters in accordance with the Law, and the distribution by County, Consistency, Ward and Polling Station, amongst other relevant details in the Register. An update of the state of the register as at 16 June 2022 is provided overleaf, together with our final assessment of the accuracy of the Register of Voters and outline various recommendations and mechanisms to enhance the accuracy and completeness of the Register.
- We also outline our assessment of the remediation measures implemented by the Commission subsequent to the preliminary report.

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1.10 Overview of results as at 8 June 2022

970,351

Distinct records in the RoV with at least one exception. Out of the 22,642,233 records which were reviewed this represents 4.29% of the total population

3

481,711

Records within the RoV with duplicated or blank IDs/Passport references

2

4,757

Individuals who have registered more than once, with both an ID number and a passport number

1

226,143

IDs and passport reference that match to NRB and DIS but names recorded in the ROV do not match with NRB and DIS records

164,269

Records with invalid document reference number as recorded in the RoV when compared to National Registration Bureau (NRB) and Department of Immigration Services (DIS). 12,435 invalid passports and 151,834 invalid IDs.

4

246,465

Records in the RoV that are in the list of Deceased Persons provided by the Civil Registration Services

5

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1.10 Overview of results as at 8 June 2022 - continued

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Irregular Exceptions' Results

2022 Registered Voters

22,642,233

Total Unique Exceptions in RoV

970,351

Voter Records in RoV with atleast one exception excluding deaths

727,586

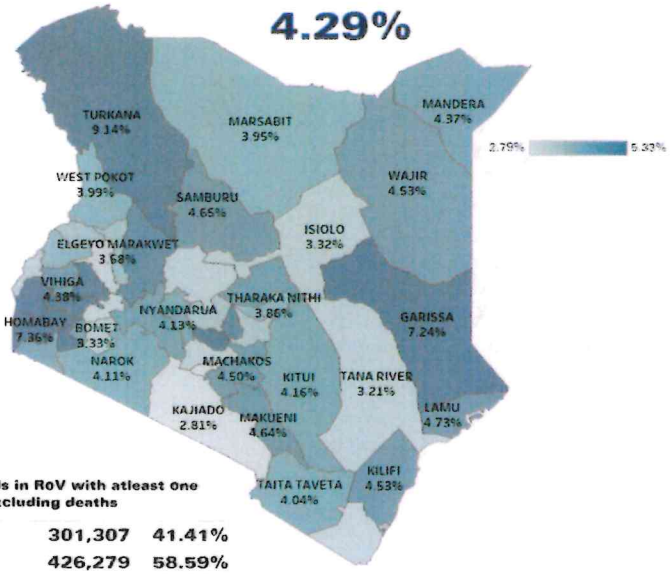
Summary

Registration with duplicates or missing IDs	481,711
Registration with invalid reference number compared to NRB	164,269
Deceased voters with IDs in RoV	246,465
Registration with a passport and national ID	4,757
Registration with matching reference number but different names compared to NRB	226,143

Geographical Distribution of Exceptions

Overall irregular exceptions as a percentage of RoV

4.29%



Voter records in RoV with atleast one exception excluding deaths

Post 2017	301,307	41.41%
Pre 2017	426,279	58.59%
Grand Total	727,586	100.00%

	Total Distinct Exceptions	Registered Voters	% of Total Exceptions
DIASPORA	2,057	10,453	19.68%
PRISONS	305	7,211	4.23%

Distinct Exceptions and Voters by County

County Code	County Name	Total Distinct Exceptions	Registered Voters	% of Total Exceptions
1	MOMBASA	23,795	654,574	3.64%
2	KWALE	10,119	333,354	3.04%
3	KILIFI	27,308	602,441	4.53%
4	TANA RIVER	4,596	143,305	3.21%
5	LAMU	3,925	82,983	4.73%
6	TAITA TAVETA	7,548	186,772	4.04%
7	GARISSA	15,174	209,697	7.24%
8	WAJIR	10,056	221,771	4.53%
9	MANDERA	9,695	221,862	4.37%
10	MARSABIT	6,709	169,753	3.95%
11	ISIOLO	2,979	89,764	3.32%
12	MERU	34,638	788,028	4.40%
13	THARAKA NITHI	9,173	237,924	3.86%
14	EMBU	12,005	341,726	3.51%
15	KITUI	22,683	545,783	4.16%
16	MACHAKOS	31,785	706,277	4.50%
17	MAKUENI	22,768	491,048	4.64%
18	NYANDARUA	15,359	372,038	4.13%
19	NYERI	17,475	489,660	3.57%
20	KIRINYAGA	19,650	386,658	5.08%
21	MURANG'A	34,796	643,357	5.41%
22	KIAMBU	41,822	1,299,009	3.22%
23	TURKANA	22,828	249,798	9.14%
24	WEST POKOT	8,901	223,169	3.99%
25	SAMBURU	4,735	101,857	4.65%
26	TRANS NZOIA	15,222	406,859	3.74%
27	UASIN GISHU	15,912	514,522	3.09%
28	ELGEYO MARAKWET	7,925	215,529	3.68%
29	NANDI	22,981	418,465	5.49%
30	BARINGO	14,225	286,886	4.96%
31	LAIKIPIA	8,869	268,613	3.30%
32	NAKURU	46,746	1,080,816	4.33%
33	NAROK	16,699	406,581	4.11%
34	KAJIADO	13,203	469,558	2.81%
35	KERICHO	13,649	435,274	3.14%
36	BOMET	12,829	384,691	3.33%
37	KAKAMEGA	39,891	869,654	4.59%
38	VIHIGA	13,969	319,074	4.38%
39	BUNGOMA	26,034	662,065	3.93%
40	BUSIA	14,278	424,745	3.36%
41	SIAYA	45,535	555,806	8.19%
42	KISUMU	39,016	629,225	6.20%
43	HOMABAY	42,016	571,159	7.36%
44	MIGORI	20,637	478,960	4.31%
45	KISII	35,422	655,346	5.41%
46	NYAMIRA	14,206	332,043	4.28%
47	NAIROBI	68,203	2,446,110	2.79%

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1.11 Our assessment of the final RoV as at 16 June 2022

We received a final Register of Voters on 16 June 2022 at 11 a.m. The Commission intends to certify and gazette the Register on 20 June 2022. We audited the Register of Voters with a specific focus on the following areas:

- Obtain an understanding of the state of the register that will be certified, and gazetted and the updates made to the register subsequent to our preliminary findings report.
- Review the updates made in the Register following completion of the statutory voter verification period which ended on 2 June 2022, and obtain an understanding of the impact of any claims arising from the verification period on the final Register.
- Review remediation measures implemented by the Commission to update the register to address identified irregularities with regards to the processing of voter transfers in the Register. The Commission had embarked on a comprehensive quality assurance initiative targeting transfers in the Register and instructed Registration Officers to review voter transfers within their areas of jurisdiction and process corrections of any anomalies identified during the voter verification exercise.
- Review the status of implementation of recommendations made by KPMG in our preliminary audit report and assess the impact of the corresponding updates made in the Register to improve the accuracy of the final register that will be certified and gazetted for use in the 9 August 2022 elections.
- Assess the status of outstanding findings, and report on their potential impact on the Register and measures put in place to safeguard its integrity.
- Consider actions taken by the Commission and incorporate their management action plans and comments in the final report.
- Issue a final audit report on the audit of the register of voters.

Our assessment of the above is now complete and included in subsequent sections of this report.

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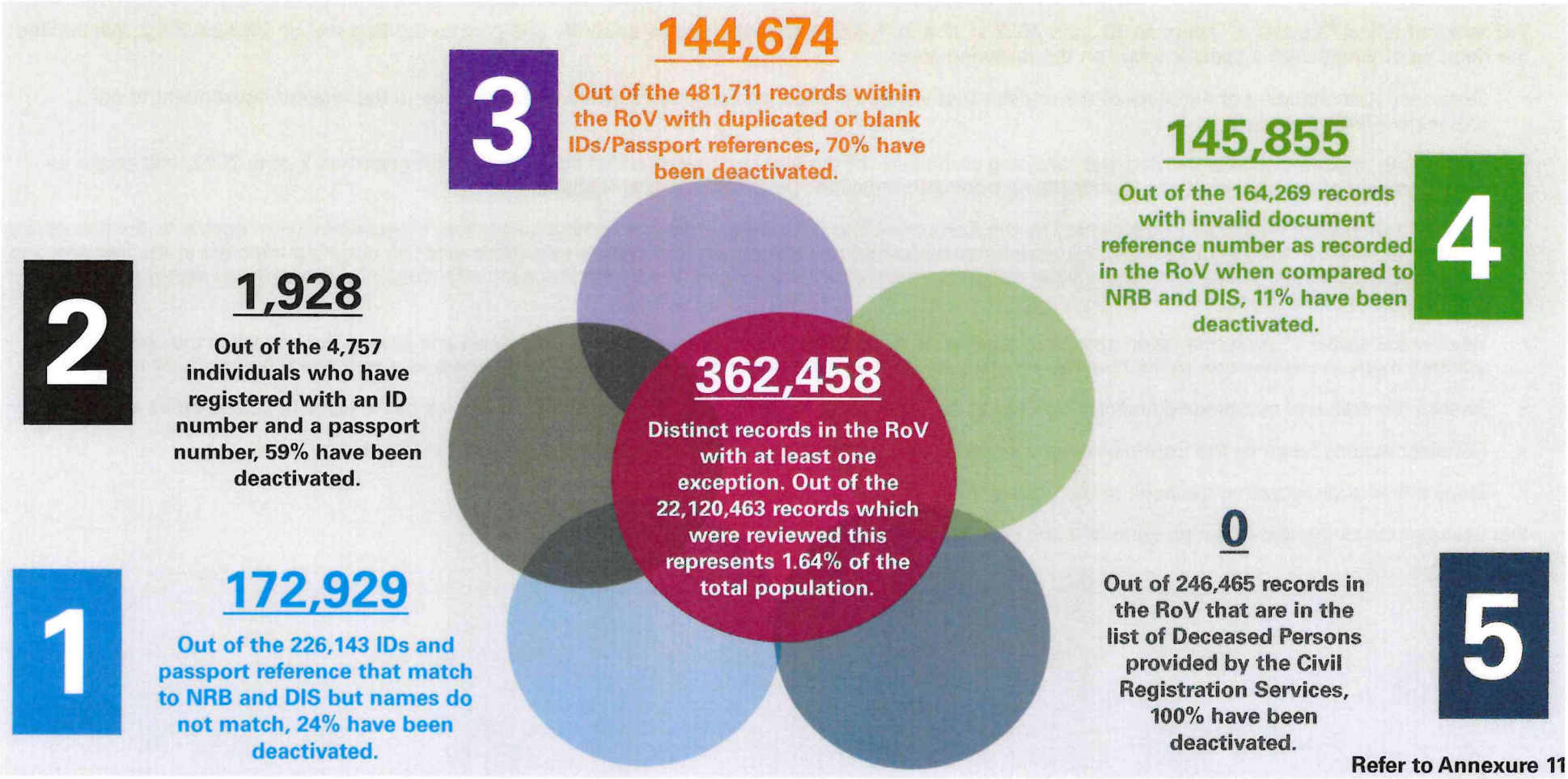
1.11 Overview of final audit results as at 16 June 2022



Refer to Annexure 11

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1.11 Overview of results - continued

Processing of Voter Transfers

Our review of the controls over processing of voter transfers in the period 2017 – 2022 has highlighted weaknesses in key controls. Applications for transfers requires completion of the Statutory Form C, attaching a copy of the ID of the applicant and affixing of the official IEBC stamp by the RO before the voter transfer can be processed in the Register by the RO in the location in which the voter which to transfer.
During our list to form audit procedures across a select sample of 14 counties that we visited in the course of the audit, we identified many instances of transfers that had been processed in the system but the source documents, Form Cs, could not be traced. A listing of these exceptions were provided to IEBC for review and remediation.

During the period of verification of voters' details on 4 May 2022 to 2 June 2022, there were many claims raised by voters across various counties who discovered that the electoral areas in which they had registered had been changed without their knowledge and approval. At the time of our report, the Commission was investigating the circumstances surrounding these transfers, and issued instructions to all registration officers across the country to reverse voter transfers in the register which did not have appropriate supporting Form Cs.
We analyzed the full register (RoV3) and noted that there were 1,368,604 transfers processed between 2017 general election and May 2022. Our analysis of these transfers identified several Counties and Constituencies showing trends of irregular voter transfers having been processed in the Register. We shared a breakdown of all transfers processed in the register to and from the 47 counties, 290 constituencies, Diaspora and Prisons, and identified the specific counties which had shown irregular trends and voter transfer numbers.

KPMG obtained the data generated from the IEBC own quality assurance review as at 12 June 2022 and compared this to the transfers data in ROV3. Out of the 638,814 records captured from Form Cs in the Quality Assurance process we noted the data had null IDs, IDs with alphabets and duplicate IDs. The final quality assurance database that was used to compare to RoV3 transfers was filtered for the 22 completed counties and the number records was 564,364. We noted the data had quality issues such as null IDs, alphabets in ID column, duplicate ID records and inaccurate county names. KPMG compared the quality assurance records against the RoV3 transfers and noted 478,248 records had matched with IDs and 86,116 records where the IDs did not match. Of the 478,248 records that matched by ID, we compared the names and noted 460,546 records had identical ID and names. KPMG then compared the county, constituency, ward and polling station for the 460,546 records and noted 429,784 records had identical details in RoV3 and the quality assurance database. This represents a 76.15% match. We have provided all the exceptions to the Commission for their further review and adjudication.
We have made a recommendation to IEBC to review transfers in the Register and confirm they are accurate and supported by validly completed source documents, Form C. It is important that this issue be addressed comprehensively and corrections made prior to certification of the Register. This will mitigate the risk of voters arriving on polling day, only to discover that they are not registered to vote at the location of their choice. Should these corrections not be made in time, they could result in skewed outcomes in the election.

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1.11 Overview of results - continued

Weak access control in the applications used to register and update voter records and lack of assurance on the security and access controls of the databases hosting the Register of Voters

An effective and successful control environment is highly dependent on how well access to the Commission's IT systems is managed. Access controls allow the Commission to restrict an individual user's access to certain parts of a system and/or data. Ensuring that users have sufficient access to perform their current roles, but without excessive, inappropriate, or out-of-date access, is critical to maintaining the accuracy of the Register of Voters.
Upon the review of the implementation of access controls with respect to the new voter registration systems i.e., the Automatic Biometric Identification Systems (ABIS), the biometric deduplication system, and the Identity Management System (IDMS), the voter update and register generation system, KPMG noted the following gaps:

i. Gaps in the management of powerful user access

Registration Officers (ROs) have elevated privileges in IEBC IDMS. The privileges are required to effect transfers of voters, change voter particulars, and deactivate deceased voters at the Constituency level. From a review of the users granted access to IDMS and their roles, KPMG noted the following:

- Constituency Registration Officers (RO) user accounts in IDMS were not allocated to named users. Instead, the accounts were named after the Constituency name. In total, there were 513 out of 522 generic user accounts in IDMS. Generic user accounts are user accounts that cannot be attributed to an individual with a reasonable level of assurance. This increases the risk of sharing credentials and reduces the accountability for user activities.
- Two RO accounts named 'balambala_ro' and 'mbalambala_ro' existed in the system. Only one constituency, Balambala, is gazetted.
- Despite the update of the Register of Voters being the role of ROs, there were 14 non-RO users' accounts that had been granted the voter update privileges in IDMS. 10 users were named 'Embakasi South Clerks', and four were IT users.

There were 11 active generic accounts on the ABIS application and two ABIS users with the same login ID.
There is a risk that users who are not authorized by law may process transfers, change of particulars or deactivate voters in the system. The risk is further elevated because IEBC has not set up an access re-certification and user activity review process. KPMG had placed an information request for an extract of the log of user activities in IDMS and ABIS but IEBC did not provide the extract at the time of the review. Therefore, KPMG is unable to report on the nature of activities carried out by users in the ABIS and IDMS systems.

KPMG recommends that IEBC should conduct a comprehensive review of user access in IDMS and ABIS with a view to assigning user accounts to specific persons in IEBC to ensure there is accountability for user activities in the system. The Commission should establish a process whereby information owners (DVREO in this case) review user access rights on a regular basis to ensure that the access granted is aligned to specified job functions. Regular reviews of activities performed by powerful users should be done by an independent function such as the Risk function, to ensure that they are appropriate.

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1.11 Overview of results - continued

ii. Gaps in the authorization and provisioning of user access to ABIS and IDMS application

User access to the IEBC system is granted via a user access request form. The form must be approved by a supervisor and Director ICT before access is provisioned. From a sample of user accounts in ABIS and IDMS, KPMG noted the following:

— User accounts in the ABIS application were created before the date of approval on the user access request form.

— User accounts in IDMS did not have user access request forms.

— User access request forms that lacked approval or did not capture the approval date of the Supervisor or the Director of ICT.

These gaps in the provision and authorization access to the ABIS and IDMS applications are indicative of ineffective access controls in the IEBC environment. They present an increased risk of unauthorized and inappropriate access to voter data.

KPMG recommends that the Commission should ensure that all users accessing the IDMS and ABIS have the relevant approvals before being granted access to the systems to safeguard the integrity and confidentiality of the data processed in those systems. The list of users with access to the systems should be immediately reviewed and approved (fill out new access forms and obtain appropriate signoffs) prior to the certification of the Register of Voters.

iii. Limited assurance on the access controls around the databases hosting the register of voters:

KPMG sought to test the databases hosting the Register of Voters with a view to determining the effectiveness of the design and implementation of controls around authorization and provision of access, authentication and privileged access. KPMG made several information requests for the audit of the databases hosting the Register of Voters and the Commission did not provide the requested information in a timely manner. On the eve of the reporting date, IEBC shared some information in response to database access controls information requests. KPMG subsequently requested a meeting with IEBC and Smartmatic (the system vendors) to obtain clarification on the information provided. The meeting was not facilitated before issuance of the final report. Nonetheless, KPMG analysed the information provided and made the following observations based on the information provided:

- Audit trails on the IDMS database had not been activated.
- Audit trails on ABIS database were only available from 9 June 2022 despite users in ABIS application being created from 11 April 2022.
- There were seven generic active accounts in IDMS Database. Five of these accounts had a login between 24 May and 9 June 2022.

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1.11 Overview of results - continued

- There were six generic accounts in the ABIS database. One user 'Abis' had been granted 'delete', 'insert', 'trigger', 'truncate' and 'update' privileges in the database and the default user 'Postgres' had not been deactivated. 'Postgres' accounts has super user access to the database.
- The IDMS database password settings were inconsistent with the password policies. The password is set to expire after 180 days as opposed to the policy requirement of 60 days.
- The IEBC policy requires that accounts that are inactive for a period of 90 days should be deactivated. The IDMS database is not configured to disable accounts that are inactive for more than 90 days.

Users with direct access to the database are privileged users and they pose the highest risk to the integrity of the Register of Voters. It is critical that access to the database is controlled and monitored in line with IEBC information security policies. To enhance the trust of the voter registration systems and the Register of Voters, we recommend that the Commission should conduct a comprehensive review of the access controls around the databases hosting the Register of Voters prior to the next general elections.

IDEMIA voter registration systems access control weaknesses:

KPMG also reviewed the legacy voter registration and update systems (IDEMIA Systems). The IDEMIA system held approximately 19.8 million voter records which was migrated to Smartmatic systems during the implementation. KPMG concluded that the access controls around the application and the database hosting the register of voters were ineffective. Key observations noted include:

- Password settings in the application layer and Database layer were inconsistent with the IEBC policies.
- Audit trails indicate that there were users who were not gazetted as Returning officers or Assistant Returning officers who made updates to voter data
- There were users who were granted access to applications without user access forms or without appropriately completed/authorized user access forms
- Excessive user access rights granted to users at the database level.

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INDEPENDENT ELECTORAL AND BOUNDARIES COMMISSION

Audit of the Register of Voters Recommendation Implementation Matrix

#	Observation Title	Recommendations	Action Taken
	Processes		
1.	Applicants not in the register of voters and Lack of requisite statutory forms to support voter details in the register of voters	(i.) The commission should undertake a quality assurance exercise on completeness and accuracy of the register of voters based on completed statutory forms and the availability of statutory forms supporting the details in the register of voters including the exceptions identified. (ii.) The commission should progressively adopt digital records management system moving away from manual records management in line the developed records management guidelines.	(i.) The quality assurance exercise on completeness and accuracy of the register of voters based on completed statutory forms and the availability of statutory forms supporting the details in the register of voters including the exceptions identified as advised by KPMG has been done. This was done by sharing with the 290 Returning Officers (ROs) the preliminary Register of Voters with 22.1 million records to confirm accuracy and completeness. (ii.) This recommendation will be prioritized immediately after the post-election evaluation. The commission, in its strategic plan, identified voter registration document management as a priority activity. This was to standardize and provide guidelines on documentation, archiving, safe custody and disposal

#	Observation Title	Recommendations	Action Taken
			in line with the Public Archives and Documentation Service Act (Cap. 19) as well as Data Protection Act, 2019
2.	Gaps in transfer of voters	(i.) Continue with the update of population of the quality assurance database with all Form Cs available. (ii.) Review all transfers processed in the register during the CVR, ECVR 1 & 2 and ensure they are duly supported by appropriate statutory Form Cs prior to certification of the Register of voters that will be used in the August 2022 elections (iii.) Investigate the null, duplicate and unmatched ID, transfer records.	The three recommendations were implemented and closed. Further, identification issues were resolved as indicated below: 1. IDs with expiry dates; The Registration Officers (ROs) were guided to edit and removed expiry dates. 2. Passport without expiry dates; The ROs were guided to edit and removed expiry dates 3. Records with names in numeric form; The ROs were guided to find applicants and update names 4. Records with missing First and Surnames; The ROs were guided to find applicants and update records 5. Records with Null County and Constituency names; The ROs Updated the records accordingly 6. Records of military and driving license; The ROs were guided to locate applicants and update records 7. Voters missing D.O.B - The ROs were guided to find applicants and update

#	Observation Title	Recommendations	Action Taken
3.	Invalid voter identification documents and duplicates in the register of voters	(i.) The commission should periodically obtain third-party reference data and compare details with the register of voters to assess and confirm validity of the registration documents. (ii.) The commission should effect input validation controls on the new kits to ensure capture of correct details at the registration point. (iii.) The commission should enhance deduplication process to ensure duplicate records are identified and removed from the register of voters	(i.) The commission will engage with the relevant government agencies who are the legal custodians of reference data to periodically obtain the reference data and compare with register of voters to assess and confirm validity of registration documents. (ii.) The new registration application system will be setup with input validation controls to ensure completeness and accuracy of details captured at the registration point. In addition, the commission will engage IPRS on possibility of interfacing with their database while registering to minimize key stroke errors. (iii.) The commission's deduplication system supports effective identification of duplicates. Adjudication process that require human intervention is still key to reconfirming information prior to removal of the voters for cases that require human intervention. This process is important in preventing deletion of genuinely shared details e.g. shared ID.
4.	Lack of a continuous update to the ROV through removal of deceased voters, persons convicted of election	(i.) The commission should discuss with other reference agencies on modalities to ensure compliance with the laws and regulations. This could entail defining guidelines on frequency for engagement	(i.) Pursuant to Article 83 of the constitution, the commission, in its inter-agency collaboration with government agencies, wrote to Civil Registration Services and Office of the Directorate of Public Prosecution on provision of data on deceased

#	Observation Title	Recommendations	Action Taken
	offences and persons declared to be of unsound mind	with Agencies of Government who are the legal custodians of reference data to enable data collection for purposes of updating the register or voters.	persons and persons convicted of election offence during the preceding five years. However, Civil Registration Services responded that they were in the process of automating their processes and will provide the data once the exercise is concluded. (ii.) To mitigate against the risks of illegitimate voters voting during election day, the commission will deploy KIEMS kits for biometric identification of voters. (iii.) The commission has deactivated 310,837 records of deceased persons from the Register of Voters and will collaborate with government reference data agencies to ensure periodic receipt of relevant data for continuous update of the register of voters. (iv.) Regarding persons of unsound mind, there is no government agency with adequate reference data to enable update of the Register of Voters.
5.	No centralized records showing inventory of BVR kits used for voter registration	(i.) The commission should undertake a stock take of all BVR kits in the country with a view of establishing inventory records of all BVR kits and their serial numbers, current location and status (functional/non-functional) of the kits.	(i.) The commission keeps track and records all the BVR kits that were procured in 2012. The kits are over ten years old and have given the country value for money

#	Observation Title	Recommendations	Action Taken
		This should be reconciled to the records of purchased kits to establish if there are any lost kits that cannot be accounted for. (ii.) The commission should establish detailed inventory records of the new KIEMS kits being purchased highlighting the serial numbers for each kit. Periodic serial number reconciliation of the kits should be conducted comparing with details of the purchased kits and kits used in conducting voter registration. This is to enable the commission to account for all the kits and aid in identification of foreign kits that may be used in conducting unlawful registrations.	An inventory management system is one of the key issues identified by the commission to better track its assets. Budget allowing, the commission is exploring possibility of acquisition and implementation of an inventory management system and asset tagging to provide visibility of all its kits centrally and to enable tracking of the same to their serial number level. (ii.) The commission has refurbished one of its warehouses and brought it to a level where maintenance and storage of KIEMS Kits can happen centrally. The central warehouse which is currently operational will maintain inventory of all kits and maintenance of all elections technology equipment.
6.	Wrong date configuration due to manual retrofitting of BVR kits.	(i.) The commission should consider implementing an online system that allows centralized retrofitting of BVR kits to ensure that the BVR kits are retrofitted to the required standards in a consistent	(i.) The commission's ICT team had implemented a paper-based process requiring documentation of data at every stage of data transportation i.e. from field to the constituency office, to the county office and finally to the headquarters. The process is to assure

#	Observation Title	Recommendations	Action Taken
		manner. Retrofitting should include locking of the BVR kit data based on the server date. (ii.) In the absence of an online system, the commission should introduce a maker checker process to ensure that the date and time once set by ICT clerk is confirmed by a registration clerk prior to use of the kit in conducting voter registration.	completeness of configuration and the data being transported. In addition, the RRN number which is derived from the kit number can be used to track data and any wrong settings on the kits. (ii.) The new kits are android based and will be automatically setting time and date from the network time servers. There will be no need for manual intervention.
7.	Need for alignment of registration requirements to the data protection law	(i.) The commission should do an assessment of compliance to the requirements of the data protection act, 2019 and regulations with regards to voter registration and implement all the requirements.	(i.) In order to comply with the Data Protection Act, 2019 the commission carried out a Data Protection Impact Assessment (DPIA) as guided by the law. (ii.) The commission is regarded as a data controller as well a data processor. (iii.) The commission signs data privacy agreement with any entity/person requiring register of voters with truncated personally identifiable information like IDs/PP and Telephone numbers. (iv.) The commission will also review voter registration statutory forms to comply with the data protection

#	Observation Title	Recommendations	Action Taken
			laws. Future enrolments will be based on compliant forms. (v.) Further, at polling stations, the register of voters to be printed and displayed seven days to election will have truncated/minimised details to protect personally identifiable information of the data subjects.
8.	Delay in provision of kits for purposes of voter verification and temporary staff without contracts	(i.) The commission should ensure adequate logistical arrangements are done before critical electoral exercises such as enhanced voter registration, voter verification and elections to ensure timely delivery of all materials. (ii.) The commission should ensure all temporary staff are duly contracted before being engaged by the commission.	(i) The commission experienced delay in technology implementation due to KIEMS tender award being taken to Public Procurement Review Board (PPRB) and subsequently to the High Court. Further delays were occasioned by transitional challenges from old vendor to the new vendor. Proper arrangements have been put in place ahead of upcoming general election to ensure technology works as expected . (ii) The commission has put mechanisms to ensure that temporary staff are duly contracted before they are engaged.
9.	Inadequate hand over procedures at county and constituencies upon staff movements.	(i.) The commission should ensure the handover reports are signed by both the outgoing officer after confirmation of accuracy of the handover report.	(i.) A detailed handing over checklist was provided to all county and constituency returning officers that required sign-offs to guide the process. The handover included a comprehensive template dedicated to the Register of voters. However,

#	Observation Title	Recommendations	Action Taken
		(ii.) The commission should share clear guidelines on handover and follow up on implementation upon movement of staff.	some returning officers did not adhere to the protocols put in place. The commission identified the concerned staff for administrative action.
	Register of Voters and System Controls		
1.	Status of implementation of the Biometric Deduplication system and voter update and register generation system	(i.) IEBC should engage Smartmatic and conduct the user acceptance testing, and technical acceptance testing and move the system to the production environment once the go-live criteria. The deduplication should be conducted in the production environment.	(i) The commission had already fully implemented the system as supported by sign-off documents. The commission provided evidence of user acceptance and technical acceptance testing sign-offs as well as evidence of training for the system components/modules that had already been rolled out. Amongst the evidence provided is IDMS User Acceptance Test documents duly signed-off by ICT staff on 12th May 2022.
		(ii.) The commission technical team should take charge of the deduplication process with the full support of Smartmatic team. The commission should also review the audit trails and documentation of the completed deduplication process to obtain assurances that the processes were carried out in line with IEBC specifications.	(ii) Due to constrained time to deploy occasioned by court cases and handover challenges between the existing vendor and the new vendor the commission ICT staff had to work hand in hand with Smarmatic in performing deduplication process. In the forthcoming deduplication exercise, the commission will take full charge of the process. The audit trails and documentation of the completed deduplication process were reviewed as recommended

#	Observation Title	Recommendations	Action Taken
			and reasonableness on the deduplication process effectiveness confirmed.
		(iii.) The certified register of voters should be maintained in an environment that has been fully handed over to IEBC and is under their control. This will provide assurance on ownership of the register of voters by IEBC, responsibility and accountability of the register of voter and sufficient audit trails for any potential updates.	(iii) Due to constrained time to deploy occasioned by court cases, handover challenges between the existing vendor and the new vendor, and the need to adequately prepare for general election the recommendation will be implemented after election. From the time of certification of the register of voters no change is allowed without commission plenary approval.
2.	Late implementation of the Smartmatic system impacting the completeness and accuracy of voters	(i.) IEBC to confirm that ALL enrolments from ECVR1 and ECVR2 and the CVR are completely uploaded to the register of voters that will be certified 60 days prior to the election.	(i.) The commission implemented the recommendations on this item and shared the complete register of voters.
		(ii.) Prioritize deduplication and the required adjudication, where relevant, to completed at least 60 days prior to the general election.	(ii.) Recommendation requiring prioritization of deduplication and adjudication at least 60 days prior to general election was not feasible this time due to litigation and vendor changeover challenges explained above. In future the commission will pay greater attention on time to deploy electoral system.

#	Observation Title	Recommendations	Action Taken
		(iii.) Review all enrolment records and confirm that they have been updated in the register of voters, including transfers and change of particulars. (iv.) Update the register of voters with outcome of verification at least 60 days prior to the general election. (v.) For future periods, IEBC must take cognizance of the timing of major change or replacements of systems that are core to the elections to allow sufficient lead time for procurement, implementation, deployment, testing and preparation of the production environment long before election.	(iii.) The recommendation was implemented prior to certification of the register of voters by sharing the register with ROs and confirming new enrolments, transfer and change of particulars. (iv.) Recommendation requiring updating the register of voters with outcome of verification exercise at least 60 days prior to general election was not feasible due to litigation and vendor changeover challenges explained above. In future the commission will pay greater attention on time to deploy electoral system. (v.) In future the commission will pay greater attention on time to deploy electoral system.
3.	IEBC used incomplete register of voters for the verification exercise.	(i.) IEBC to confirm that all enrolments from ECVR1, ECVR2 and the CVR are completely	The Commission completed the recommendation shared on this item and shared the complete register of voters.

#	Observation Title	Recommendations	Action Taken
		uploaded to the register of voters that will be certified 60 days prior to the election.	
4.	Manual interventions in the collection, transfer and decryption of enrolment data increasing risk of incomplete register of voters.	(ii.) IEBC must investigate reasons for variances and confirm that all enrolments and updates are reflected in the register of voters to be certified 60 days before the general election.	This was occasioned by changeover challenges between the old and the new vendor. However, the commission through directorate voter registration department and the registration officers in the 290 constituencies verified their respective updated register through the IDMS by confirming that all enrolments and updates were not only reflected but supported by relevant forms.
5.	No assurance on the design and effectiveness of the controls implemented in the databases hosting the register of voters.	(i.) The commission should conduct a comprehensive review of the access controls around the database hosting the register of voters prior to the next general elections.	(i.) All the access rights for system administrators have been withdrawn and the principle of least privilege used to grant new access rights.
6.	Gaps in access provisioning and monitoring of privileged user accounts	(i.)Investigate voter update activities carried out in IDEMIA system by users not listed in the gazette notice. (ii.)Assign Registration Officers (ROs) accounts to named users in IDMS	(i) Investigations were carried out and the results showed that the voter update activities were performed by duly authorized Registration Officers. The logs of updates and activities carried out on the IDMS are available for independent review. (ii) The commission has implemented an approval process to be followed prior to granting of access rights. All users access rights were disabled after completion and

#	Observation Title	Recommendations	Action Taken
			certification of the register of voters. They will be created as named users in IDMS per specific roles (ROs)
		(iii.)Disable RO privileges from users who are not ROs.	(iii) All users access rights have been disabled and will be created as named users with specific roles (ROs) once enrolments commences after election.
		(iv.)User profiles and access rights in the IDMS should be reviewed to ensure they are granted on a "need to know/have" basis in line with responsibilities.	(iv) All users access rights have been disabled. User profiles and access rights in the IDMS will be granted on a "need to know/have" basis in line with their specific roles and responsibilities.
		(v.)Review logs of user activities in IDMS to confirm that only ROs have performed voter update activities.	(v) Long reviews were done and confirmed that voter update activities were performed by ROs. The logs are available for independent review.
		(vi.)The commission should consider implementing an appropriate tool to monitor administration with access to systems supporting the register of voters on a real-time basis and generate customized reports for ease of review.	(vi) The system keeps logs of all administration transactions and updates. The logs will be reviewed periodically to provide assurance that all transactions and updates are legitimate.
		(vii.)The commission should institute regular reviews of activities performed by privileged users in the systems supporting	(vii) The ICT security section of the commission has been granted access to the system/logs to review privileged users in the system supporting the voter register. In addition, the internal information system audit will

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		the register of voters by an independent function such as Risk, and the results of the review should be documented. (viii.)The commission should establish a process whereby the directorate of voter registration and election operations reviews user access rights on a regular basis to ensure that the access rights granted are aligned to job functions.	periodically review user activities and document the same. (viii)The commission is in agreement with the auditor's recommendation on establishment of a process to allow Voter Registration and Election Operation identified user review the user access rights on a regular basis. This will be preceded by training of the identified users to equip them with the necessary knowledge.
7.	Gaps in the migration of voter data from IDEMIA systems to Smartmatic system	(i.) Migrate voter records of all elector status or avail access of voter history to registration officers to ease the investigation of claims regarding voter registrations and updates. (ii.) Perform quality assurance tests during and post-migration to validate the accuracy and completeness of the migrated data.	(i.) The voter history table was not initially migrated due to the difference between the two systems in their functionality. The commission has prioritized preparation for the general election. The recommendation will be concluded once the full BVR system is commissioned after the General Elections. (ii.) The commission worked with Smartmatic to successfully migrate the 19.8 million records from IDEMIA system to Smartmatic database.

#	Observation Title	Recommendations	Action Taken
		(iii.) Migrate valid voter records identified in the IDEMIA database and not in Smartmatic Database.	(iii.) All valid voter records in IDEMIA database and not in Smartmatic database were migrated. Clean of invalid names, ID numbers, dates of birth was done.
8.	Unfilled vacancy of the database administration role creating risk of continuity in management of the register of voters	(i.) Recruit qualified staff to supplement the role of senior database administrator and database administrator ahead of the general election. (ii.) Ensure that new staff taking up the database administrator and the senior database administrator are appropriately trained on the database administrator tasks relating to register of voters in time for the General Election.	(i.) The commission has one senior database administrator and a database administrator who have database management skills and competencies to fully maintain and administer the database. (ii.) The commission staff have been trained in adjudication and IDMS. They can now effectively manage all accounts on their own.
9.	Gaps in the monitoring of data center equipment and environmental controls	(i.) The commission should improve the environmental controls and ensure the equipment and infrastructure is regularly and adequately serviced. (ii.) The IEBC should engage service provider to repair or replace the faulty UPS.	(i.) The new data centre design and the server equipment are compliant and meet green energy requirements. Regular equipment maintenance is scheduled by the datacentre management and commission-owned equipment is managed and scheduled by the commission with specific contracted vendors/administrators. (ii.) The UPS with faulty battery alert was fixed.

#	Observation Title	Recommendations	Action Taken
		necessary to recover the complete system(s) in the event of a disaster. (iii.) The commission should perform a regular check to ensure that all endpoints have updated anti-virus installed to safeguard the integrity of the register of voters from malware and corruption leading to data loss.	These servers have more modern processing capabilities and larger storage which will give adequate space for backup testing after the general election. (iii.) The commission's ICT will perform regular checks to ensure that all endpoints have updated anti-virus installed.
11.	Gaps in access controls in the voter register system	(i.) The commission should ensure that effective and strong password policies are configured at the BVR domain and database levels to prevent users from setting weak passwords for accessing the ROV database and/or system supporting the ROV (ii.) The commission should institute regular review of user accounts that become inactive beyond the stipulated period as per the approved ICT policy. The monitoring and reviews can be performed by an independent function such as e.g. ICT security or Risk and the results of the	(i) Strong password guidelines defined in the IEBC password policy has been implemented at application and database layer levels. (ii) The ICT Security has been given access to the logs/system of register of voter to allow periodic review of privileges and users activities. The ICT security has so far reviewed all the user privileges and request for all users access rights withdrawal from the IDEMIA as well as Smartmatic system by ICT security implemented. Granting of appropriate access

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		(iii.) The commission should institute a process of regular audits of service provider controls in the data center or require the service provider to engage a service organization auditor to carry out an independent review of the data center and produce reports that can be relied upon.	(iii.) The Commission has engaged the service provider on the matter. In particular, the need to allow the commission internal audit to review controls in the data center or alternatively engage a service organization auditor to periodically review controls in the data center in order to provide assurance on the environmental controls implemented.
10.	Business continuity gaps	(i.) The commission should ensure that disaster recovery tests on the availability and completeness of the register of voters are regularly checked and tested to ensure that they are effective and that they can be completed within the time allotted in the commission's operational procedures for recovery stipulated in the business continuity plan. (ii.) Backups for voter registration and update systems supporting the ROV should be regularly tested and to ensure that they meet the commission's business continuity plan requirements. The backup arrangements should cover all ROV systems information, applications, data	(i.) The Commission has implemented regular full and incremental backups to ensure restoration in the event of a disaster. The commission has prioritized testing of the same after the general election due to time constraint. (ii.) The Commission has support and maintenance contract for the BVR infrastructure which will keep the infrastructure in proper operation status. The commission acquired and installed new BVR servers.

#	Observation Title	Recommendations	Action Taken
		review and follow up activities should be documented.	rights to users is now implemented upon submission and approval of user request forms.
12.	Inconsistencies in the user access assignment processes	(i.) The commission should ensure that all users accessing the systems supporting the ROV obtain relevant approvals before being granted access to the systems to safeguard the integrity and confidentiality of the data processed in those systems. The list of users with access to the systems should be immediately reviewed and approved (fill out new access forms and obtain appropriate sign-offs) to ensure that only valid users have access to the voter registration and update systems supporting the ROV – especially in the validation period before certifying the final ROV. (ii.) The commission should ensure that all generic accounts are disabled before commissioning systems. In addition, the organization should avoid setting up generic accounts in the systems supporting ROV. In cases where there are exceptions, these should be appropriately	(i) All users access rights have been withdrawn as recommended by ICT Security. Users have raised fresh access rights request forms based on their roles. Access is now granted upon submission of an approved access request form. (ii) All generic accounts have been disables and users have raised fresh access rights request forms based on their roles. User creation will be defined in a

#	Observation Title	Recommendations	Action Taken
		documented and monitored to ensure that they are not misused, thus compromising the integrity of the ROV.	manner that every user has unique username to establish accountability
13.	Lack of service level agreement between ICT and Directorate of Voter Registration and Election Operations	(i.) The commission should develop and implement a service level agreement between the directorate of Information and Communication Technology and the directorate of Voter Registration and Election Operation (DVREO) to define the appropriate levels of ICT support in relation to voter registration and electoral operations depending on the nature of the issue, priority, impact and resources required to resolve the issue in line with the approved ICT policy. This should be collaborative effort between the DVREO and DICT to ensure that the service level agreement is aligned with both directorates and achieves the required objectives.	(i.) The ICT directorate is working with DVREO to identify SLA parameters to enable development of one. In addition, ICT and DVREO will be have periodic Service Level Management (SLM) meetings to address concerns of the user (DVREO). The new SLA will be in place by end of the year.

#	Observation Title	Recommendations	Action Taken
14.	Gaps in the change management process in IDEMIA systems.	(i.) IEBC should engage Smartmatic to ensure that the new system being implemented has the ability to log all system changes and provide system generated change log for audit/review purposes. (ii.) IEBC should engage Smartmatic to establish a test environment for purpose of conducting user acceptance testing, and technical acceptance testing before migrating any change to the production environment to guarantee the accuracy and integrity of the system supporting voter registration and update.	(i) The commission has engaged Smartmatic to ensure that the implemented system maintains log of all system changes. Smartmatic has confirmed the system has the required capability. This will be implemented as recommended. (ii) The test environment/bed for conducting user and technical acceptance testing before migrating any changes to the production environment has been provided by Smartmatic.
15.	Physical security gaps around warehouses	(i.) The commission should consider improving the physical access controls at the various remote offices and warehouses to safeguard key equipment and computing facilities used in voter registration.	(i.) This has been addressed by the refurbished warehouse with key provisions like CCTVs, fire suppression system. In future, all kits will be retrieved immediately after use and takenback to national warehouse where they will be centrally maintained.
16.	Gaps in the review of the commission's ICT policies against ISO 27001	(i.) IEBC to consider incorporating the recommendations in the draft ICT policies	(iii.) The ICT policies and procedures are currently under review for approval and therefore the recommendations will be included in the final approved policy. The policy provides for regular

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		(ii.) IEBC to prepare or update procedures in line with the amended policies	review and therefore any additional recommendations to strengthen controls will be incorporated after approval by the Commission.
17.	Weak database configurations in the IDEMIA database	(i.) The default database configuration settings should be updated to prevent denial of service attacks on the database hosting the ROV. (ii.) The commission information security team should review the requirement of database files being stored in clear text format and configure appropriate parameters to mask sensitive data within the database.	(i.) These are amongst long-outstanding issues with the IDEMIA system and the reasons for developing technical specifications for a new system that led to the current new system under implementation. The configuration settings will be updated in the new system as recommended. (ii.) The IDEMIA databased has been phased out. The new system will address the recommendation.
	Internal Analysis: Biographic Duplicates		
1.	Inaccuracies during data capture not flagged or fully resolved during biographic deduplication process.	(i.) The commission should enhance the deduplication process to ensure duplicate records are identified and removed from the register of voters.	(i) During deduplication, all the duplicated were removed. In addition, adjudication was conducted to determine actions on the specific biometric duplicate exceptions that could not be addressed by the system.

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		(ii.) Validation check should be implemented to restrict an applicant with ID/PP that already exists in the ROV database from being committed anew should be implemented on the BVR kit.	(ii) The commission will do fresh enrolment after boundaries delimitation. Validation checks will be implemented at the front end and backend side of the new BVR system.