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JUSTIFICATION DOCUMENT

Version 1.0

Contents

Revision History

Date	Version	Description	Revised By
1st August, 2017	1.0	1st Draft Version	Steve Mutungi

Definitions, Acronyms and Abbreviations

Abbreviation	

Document Reference

Document Title	**Author(s)**

What’s New in this Version

Notes:

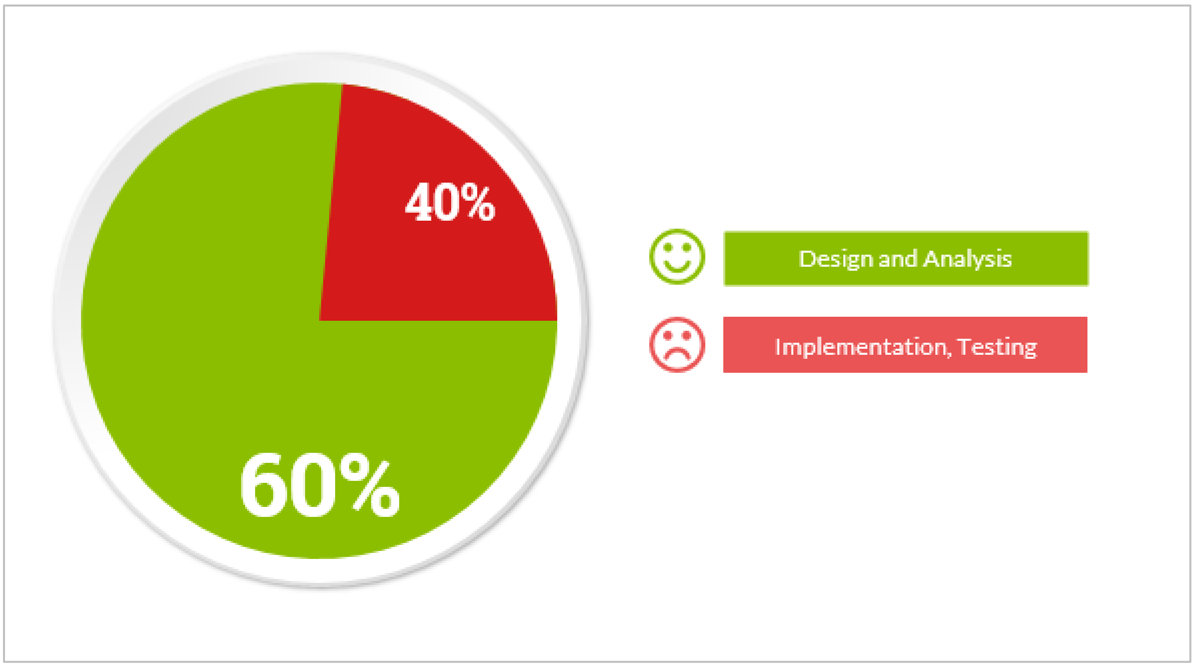
- Initial justification document for choice of system, the rationale behind it and the delivery approach.

Introduction

This document highlights the delivery approach, choice of system, rationale for the decisions made given the constraints etc.

Effort Used and Rationale behind

Most of the effort has been spent doing design, 60%. 40% has been used developing/implementing the system. This is based on industry experience in getting it right the first time.



As a senior software Engineer, this is 60:40 percentages still applies. Software engineers can develop the 40% as long as the design is clear.

Choice of System

With the current political agenda on top of every Kenyan mind, I have chosen to develop and showcase IEBC system.

In any successful enterprise, we must consider the 3 items:

- People
- Systems
- Processes

This justification focuses mostly on systems aspect as the rest are already taken care of.

For any growing and maturing democracy, having a system that is robust, scalable, with omni-channel is preferred.

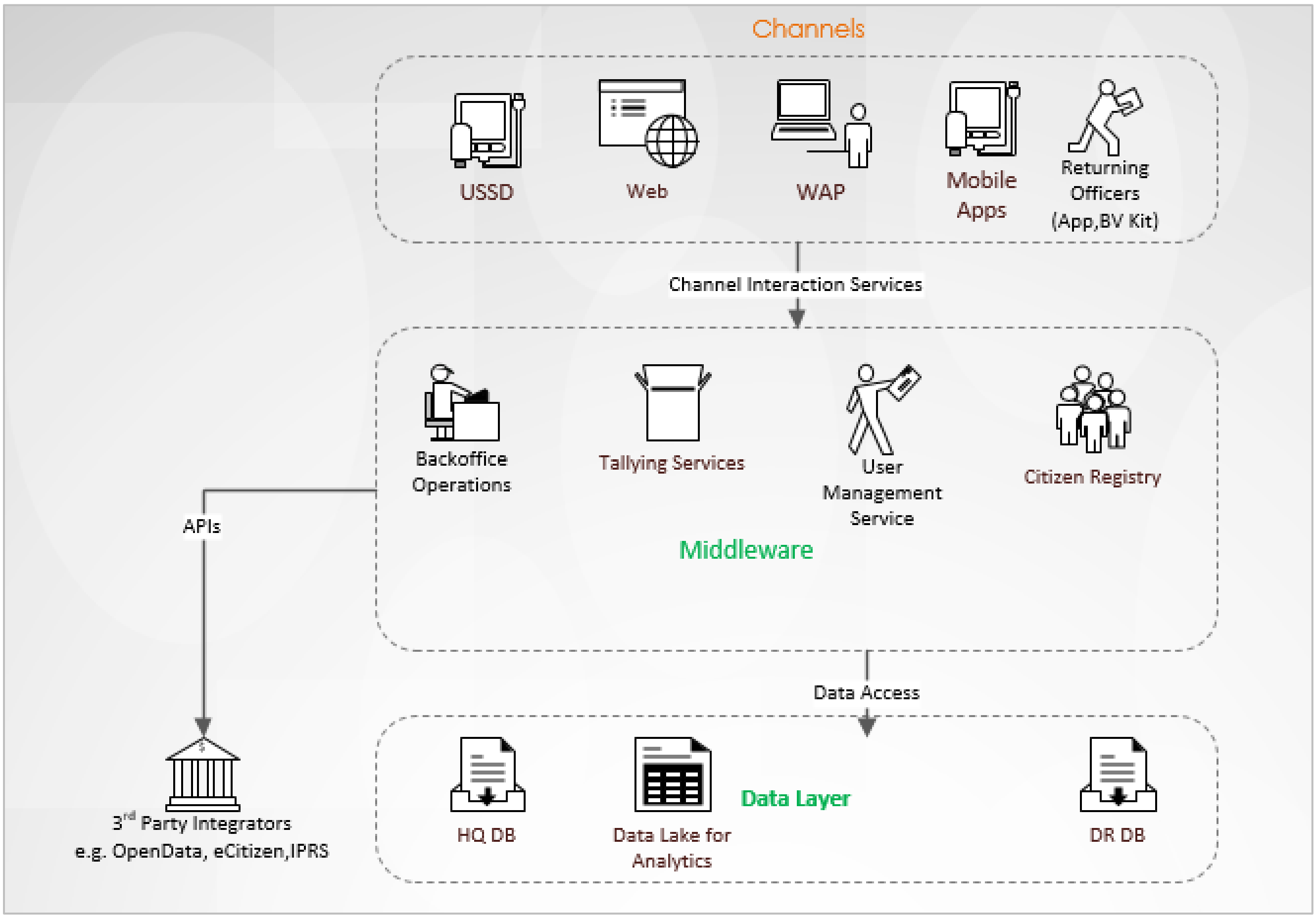
The IEBC system will utilize several APIs.

API Name	API Source	Comments
Authentication	Use of Kenyan government OneID for eCitizen	This uses Auth2.0
Publishing IEBC results for different categories e.g. Presidential, governors, MP, Senators	OpenData system by Kenyan Govt	
Facebook and Twitter posts	By Facebook and Twitter(OpenAPIs)	
Google Maps	Gets your current location and the nearest point of interest – your voting polling station	
Uber API	For estimating fare to the nearest polling station.	

Internal APIs(private APIs)	Used to get data from the field by returning officers	

System overview

The figure below highlights the key components of the system.



Component	Category	Justification	Comments
USSD	Channels	To be used by Citizens to confirm registration details. Acts as backup for returning officers.	Should be accessible via one short code for all the Telcos
WEB	Channels	This has several facets: Backend portal for administration functions ➔ **Spring Java Web highly recommended due to security considerations.** Citizen portal to query registration details, search for IEBC official results etc. ➔ **Laravel framework recommended.**	Internal portal is only available internally (local network). Public portals are accessible via public interfaces e.g. internet or public IPs.
WAP	Channels		This is a responsive version of the Web.
Mobile Apps (iOS, Android)	Channels		
Micro-services	Middleware	This uses microservices architecture that can be deployed on Docker to serve several functions e.g. tallying, authentication, external communication with other APIs e.g. IPRS etc.	

Data and Analytics layer	This constitutes of both RDBMS and non-structured DBMS. Data lakes are used for data aggregation and visualization to establish and answer the WHY (goes beyond WHAT).		

Delivery Package

The delivery package committed on GitHub includes the following:

Component	Details	Comments
Mobile App	Uses Google Map API to get your coordinates, fetches the nearest polling station	
Uber API	To estimate fare to the polling station.	
WEB/WAP	Has analytics and dashboards.	