

GAP ANALYSIS DOCUMENT

Road Crash Case Information System (Crash Form)

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Note: Due to privacy and security reasons, this project has been modified, and sensitive information is not displayed.

1. Executive Summary

This GAP Analysis examines the current state of road crash data collection within the Ministry of Internal Affairs Patrol Police Department and identifies the critical gaps that must be addressed to achieve the desired future state. The analysis follows the 5W+H framework (What, Where, When, Who, How) to systematically evaluate each dimension of the problem.

Currently, patrol police inspectors collect crash data manually using paper forms, resulting in incomplete records, missing GPS coordinates, and an inability to identify high-risk accident areas (black spots). The target state is a fully digital crash registration system (CrashForm) deployed on tablet computers in patrol vehicles, integrated with GPS for automatic location capture, and connected to a central analytical platform for data-driven decision-making.

2. GAP Analysis Matrix

The following matrix presents a comprehensive analysis of gaps between the current and desired states across five key dimensions:

Q	Current State	Future State	Gap	Actions To Close Gap
What	Patrol police inspectors collect crash data manually using paper forms. Data is often incomplete, inconsistent, and lacks standardized structure. No digital questionnaire exists for systematic data capture.	A fully digital Crash Form system running on tablet computers in patrol vehicles. All crash data is captured through structured digital forms with predefined reference lists, dropdown selections, and automatic field population.	No digital data collection tool exists. Paper-based process leads to missing fields, inconsistent data quality, and inability to perform systematic analysis. No structured database for crash records.	Develop and deploy the CrashForm digital application for tablet computers. Implement structured data entry forms with predefined reference catalogs. Integrate with the e-Flow electronic document management system.
Where	Crash locations are recorded as approximate text descriptions (road names, landmarks). GPS coordinates are not captured. It is impossible to pinpoint exact crash locations on a map or identify geographic patterns (black spots).	Each crash record includes precise GPS coordinates (N, E) captured automatically from the tablet computer mounted in the patrol vehicle. Location data is linked to municipality/district reference data for geographic analysis.	No GPS-based location capture capability. No geospatial data available for crash analysis, black spot identification, or infrastructure planning.	Integrate GPS hardware in patrol vehicle tablets to auto-capture coordinates at the crash scene. Implement municipality/district reference catalog for standardized geographic classification. Enable map-based visualization of crash data.
When	Crash data is recorded on paper at the scene and later manually entered into office systems. There are significant delays between the crash event and data availability. No real-time data access for analysts or decision-makers.	Data is entered digitally at the crash scene in real-time. Records are immediately available in the central database. Managers can verify and approve records promptly. Analysts can generate reports on demand.	Significant time lag between crash occurrence and data availability. No real-time access to crash statistics for operational decision-making.	Deploy tablet-based data entry at the crash scene. Implement status workflow (Registered / Verified) for data quality control. Provide web-based analytical interface for real-time report generation.

Who	Patrol inspectors fill paper forms. No clear role separation for data entry, verification, and analysis. Data handling responsibilities are undefined, leading to accountability gaps.	Four distinct user roles: Registrator (patrol inspector - creates new crash cards), Manager (verifies and approves records, adds scanned sketches), Analyst (searches and exports data for analysis), Administrator (manages users, roles, and reference catalogs).	No role-based access control. No formal data verification workflow. No dedicated analyst access to crash data.	Implement role-based access control within the e-Flow system. Define the Registrator, Manager, Analyst, and Administrator roles with specific permissions. Establish the verification workflow for crash cards.
How	Paper forms are filled by hand, with no validation or consistency checks. Crash sketches are drawn on paper. Data aggregation and analysis require manual effort and are rarely performed systematically.	Digital forms with dropdown selections from predefined reference catalogs ensure data consistency. Automatic field population (inspector name, sequential ID). Scanned crash sketches attached to digital records. Built-in search, filtering, export to Excel, and analytical reports.	No data validation at entry point. No automated reporting. No ability to export or cross-reference crash data across multiple parameters.	Build the CrashForm application with structured input fields and reference catalogs. Implement quick search and advanced search functionality. Develop analytical reports (by crash type, location, injury severity, time distribution, contributing factors). Enable Excel export for external analysis.

3. Priority Assessment

Based on the gap analysis, the following priorities have been identified for closing the gaps:

#	Gap Area	Priority	Impact	Effort
1	Digital crash form development (tablet application)	Critical / High	Eliminates paper-based process, ensures data completeness	High - Requires application development, testing, and deployment
2	GPS integration for automatic location capture	Critical / High	Enables black spot identification and geospatial analysis	Medium - GPS hardware already in tablets, requires software integration
3	Role-based access control and verification workflow	High	Ensures data quality and accountability	Medium - Extends existing e-Flow system capabilities
4	Analytical reporting and data export module	High	Enables data-driven road safety decisions	Medium - Standard reporting and dashboard development
5	Web-based analytical platform for stakeholders	Medium	Extends access to Roads Department and other agencies	Medium - Web application development with IP-restricted access
6	Reference catalog management and administration	Medium	Ensures consistent, standardized data entry	Low - Configuration and data setup activity

4. Recommendations

Based on this analysis, recommend a phased implementation approach. Phase 1 should focus on the core tablet application with GPS integration and structured data entry (Gaps 1 and 2). Phase 2 should implement the verification workflow and role-based access control (Gap 3). Phase 3 should deliver the analytical reporting module and web-based platform (Gaps 4, 5, and 6). A pilot deployment in the Tbilisi region, as a pilot, would allow validation before nationwide rollout.