HDS Counting and Analytics Solutions



People, vehicles, bicycles, occupancy and operational insights

Integrated by HDS

One platform can count movement, presence and use of space

PEOPLE

Entries and exits

Bi-directional counting, regional occupancy, dwell time and configured visitor analytics.

VEHICLES

Road traffic

Vehicle counts, direction, speed, class, turning movements and queues.

PARKING

Stationary vehicles

Space occupancy, facility capacity, dwell time and entry or exit records.

ACTIVE MOBILITY

Cyclists and pedestrians

Directional counts, route usage, peak periods and long-term trends.

The sensing technology changes by environment. The data model and HDS integration approach remain consistent.

Counting data moves from field sensors to operational decisions

SENSING	AI cameras	ToF / stereo	Radar	ANPR and IoT
EDGE	Object detection	Local counting	Event filtering	Buffered storage
CONNECTIVITY	Ethernet / PoE	LoRaWAN	4G / 5G	Secure VPN
PLATFORM	Dashboards	Maps	Reports	Open APIs
OUTCOMES	Capacity control	Planning	Operations	Public information

Entrance counting and indoor sensors

2-WAY

Entry and exit counting

Bi-directional counting for entrances and configured zones.

99.8%

Stated accuracy

Up to the stated accuracy on selected models.

APPLICATIONS

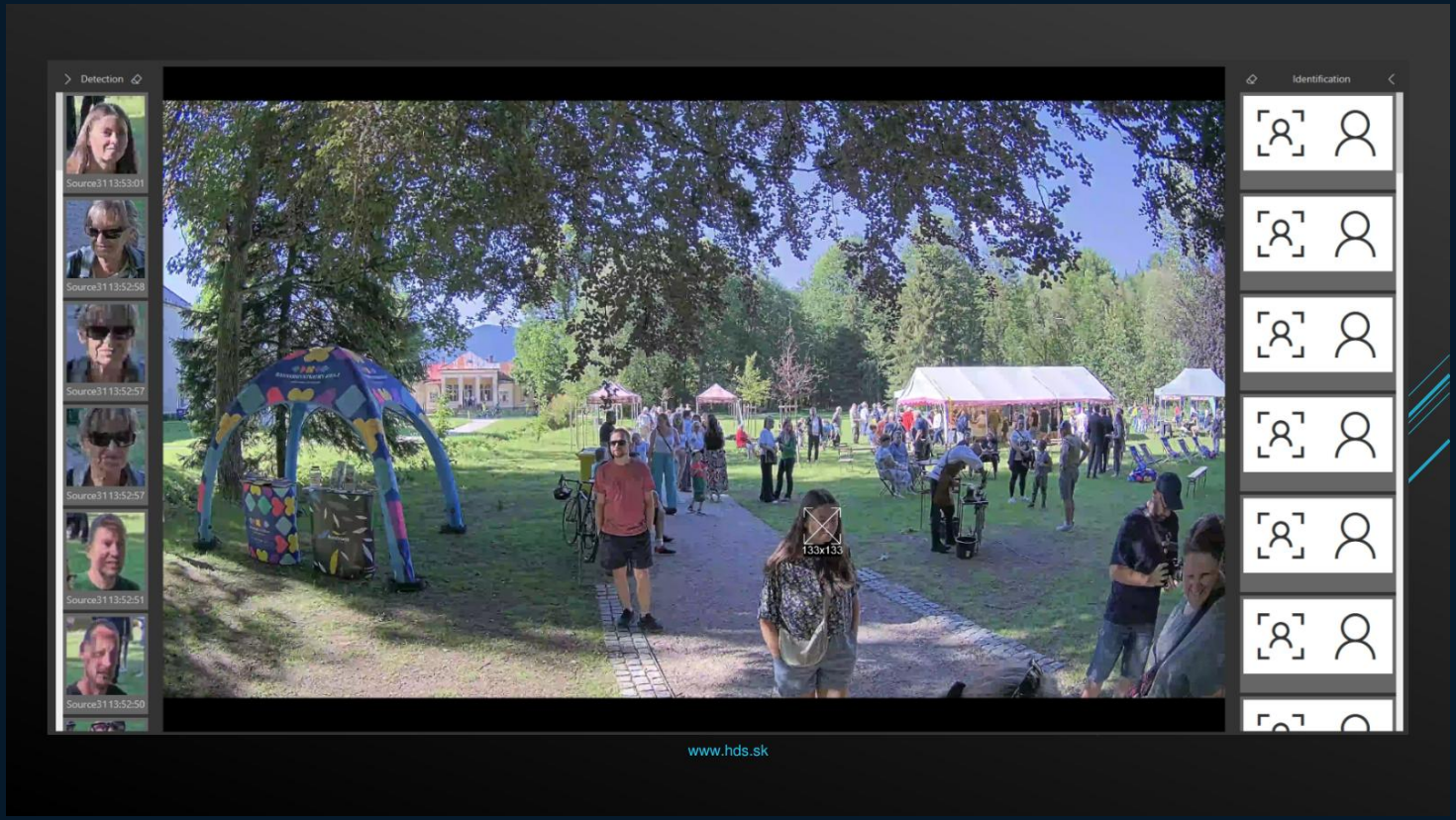
Visitor operations

Capacity, staffing and seasonal planning from one sensor range.



VS125 stereo vision VS133 second-generation ToF VS135 Ultra ToF

Area counting and occupancy



REGIONS

Multiple zones

Compare occupancy between configured areas.

DWELL TIME

Length of stay

Measure how long people remain in a region.

HEATMAPS

Spatial patterns

Visualise routes and frequently used areas.

CAPACITY

Operational limits

Update alerts or public information from occupancy.

Unique visitor analytics

USE CASE

Event and venue reach

Estimate distinct visitors across a defined period.

CONFIGURATION

Thresholds and rules

Tune matching, time windows and monitored areas.

OUTPUT

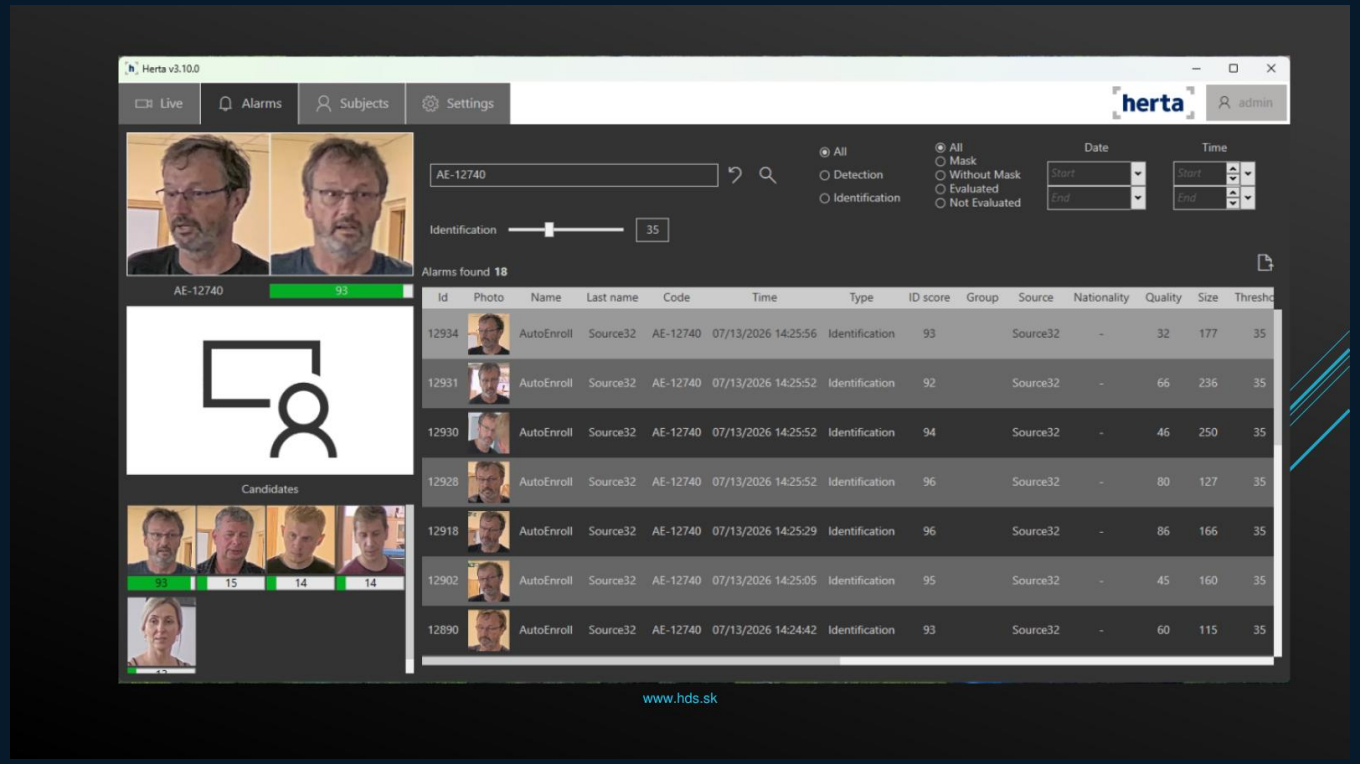
Visits and unique count

Compare detections, repeat visits and estimated reach.

GOVERNANCE

Controlled processing

Apply access, retention and privacy controls before deployment.



Vehicle counting and traffic composition

COUNT

Flow by lane

Vehicle totals, direction and time profiles by lane.

CLASSIFY

Vehicle categories

Cars, vans, buses, trucks and configured classes.

SPEED

Traffic dynamics

Measure speed and identify congestion or slow traffic.

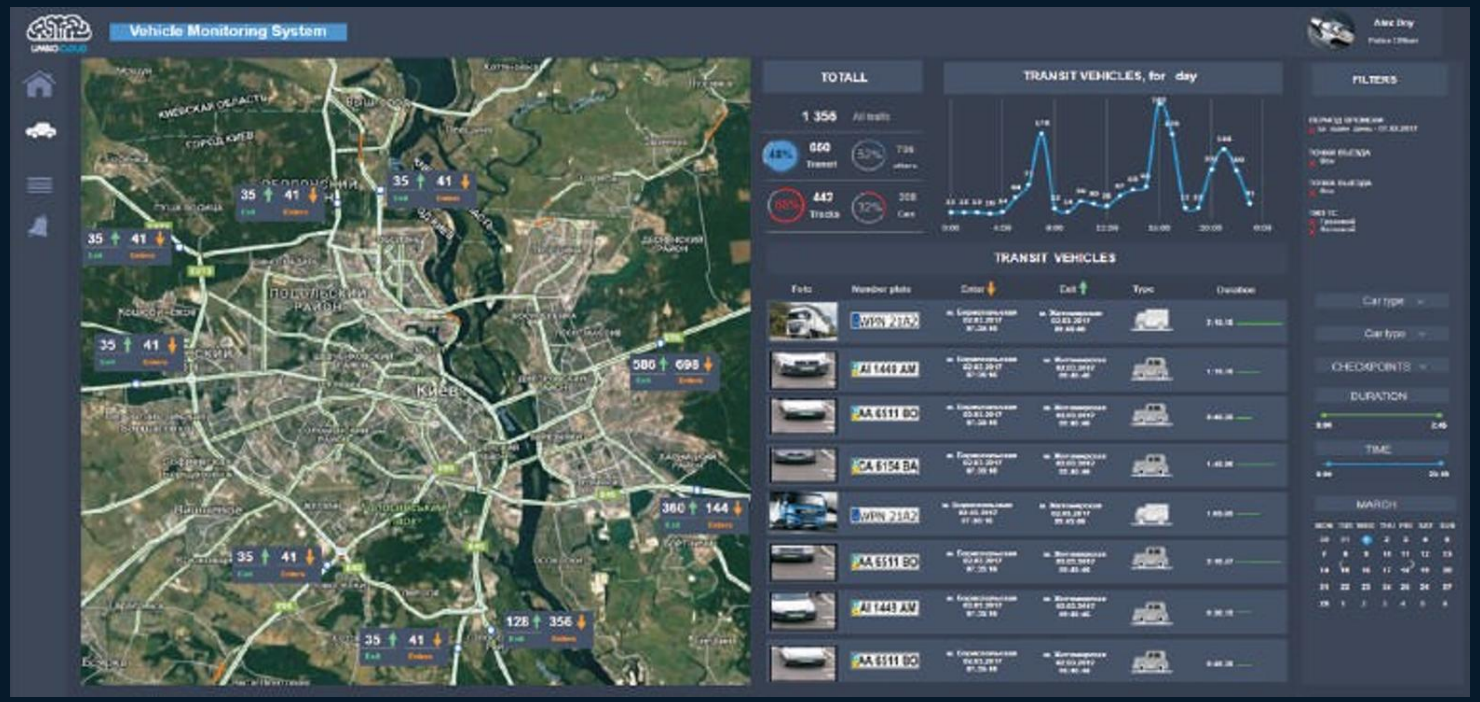
MOVEMENTS

Routes and turns

Analyse turning movements, queues and route use.



ANPR and searchable vehicle events



IDENTIFY

Licence plate event

Associate plate text, time, location and vehicle attributes.

SEARCH

Operational history

Filter by plate, time, place, class or configured criteria.

ALERT

Lists and rules

Generate events for authorised rules or watch lists.

REPORT

Evidence and trends

Export records and aggregate counts for operations.

Parking occupancy and facility capacity





SPACE LEVEL

Available or occupied

Guidance cameras monitor defined spaces and indicator status.

FACILITY LEVEL

Current capacity

Combine zones, entrances and exits into one availability view.

Directional cyclist counting

DIRECTION

Two-way route use

Compare cyclists moving in each direction over time.

CLASSIFICATION

Configured road users

Separate bicycles from pedestrians and other objects.

OUTPUT

Planning evidence

Support safety reviews and evaluation of cycling infrastructure.



Indoor people counting

Stereo vision analytics for entrances, retail areas and controlled indoor spaces





- **Entrance counting**

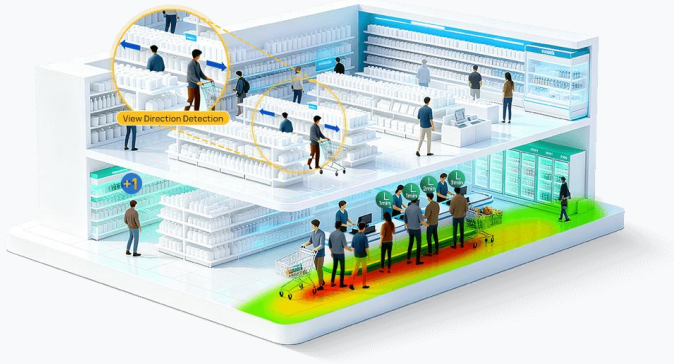
  Directional entry and exit totals with multi-device stitching for wide entrances.

- **Operational analytics**

  Queue time, dwell time and occupancy trends support staffing and service planning.

- **Privacy-aware insight**

  Anonymous counting separates groups and visitor profiles without displaying personal identity.





Outdoor people counting

Reliable directional counts at open entrances, transport hubs and public spaces



- **Directional flow**

  Separate incoming and outgoing movements across a configured counting line.

- **Outdoor deployment**

  Protected installation and elevated mounting provide a clear view of busy entrance zones.

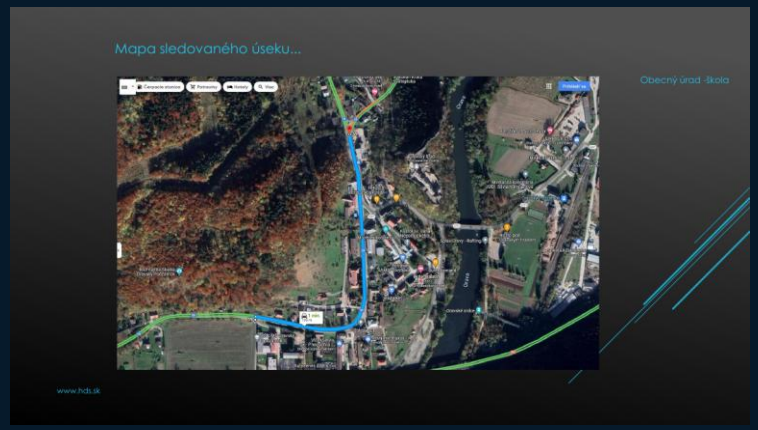


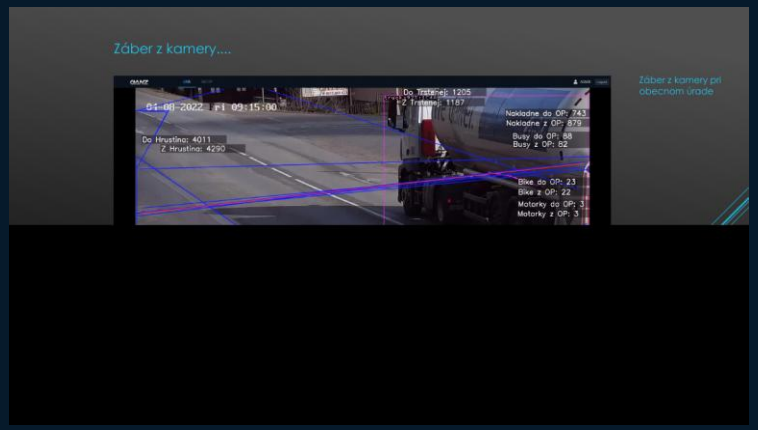
Applications

Transport terminals
Public buildings
Events and pedestrian zones
Retail entrances

Counts feed occupancy dashboards, time-based reports and operational alerts.

Traffic dynamics and time-based reports



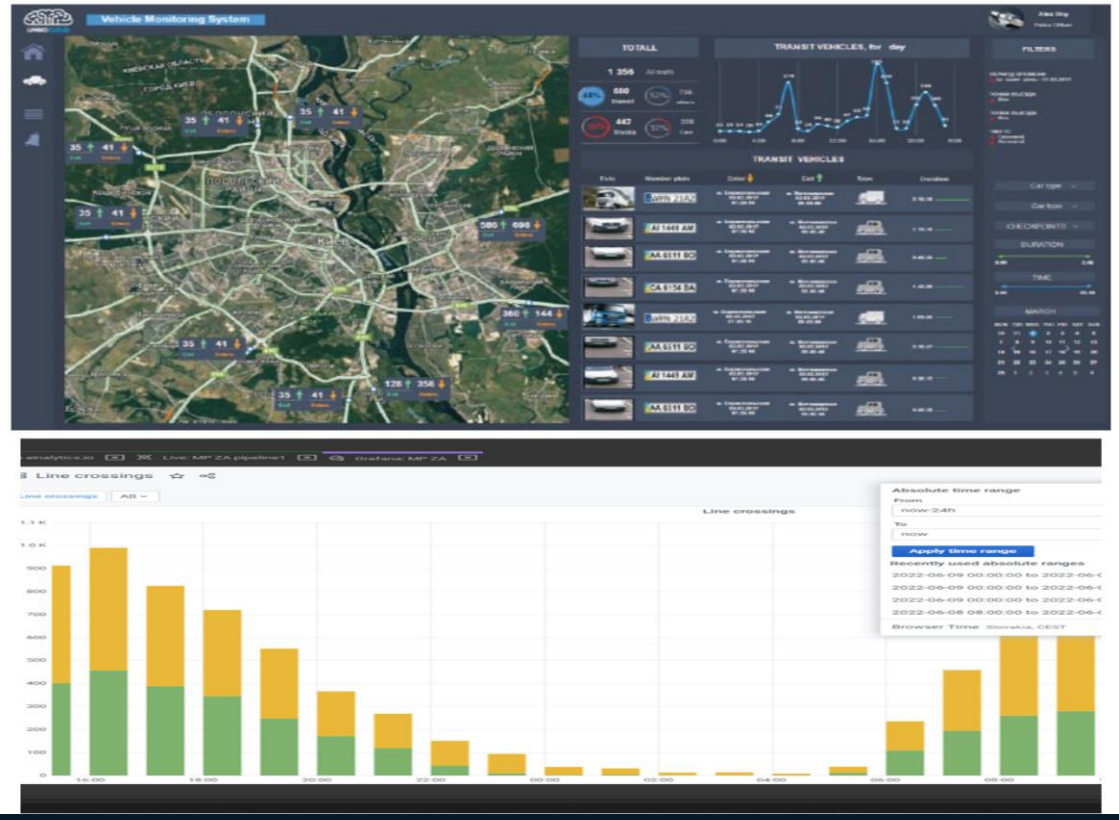


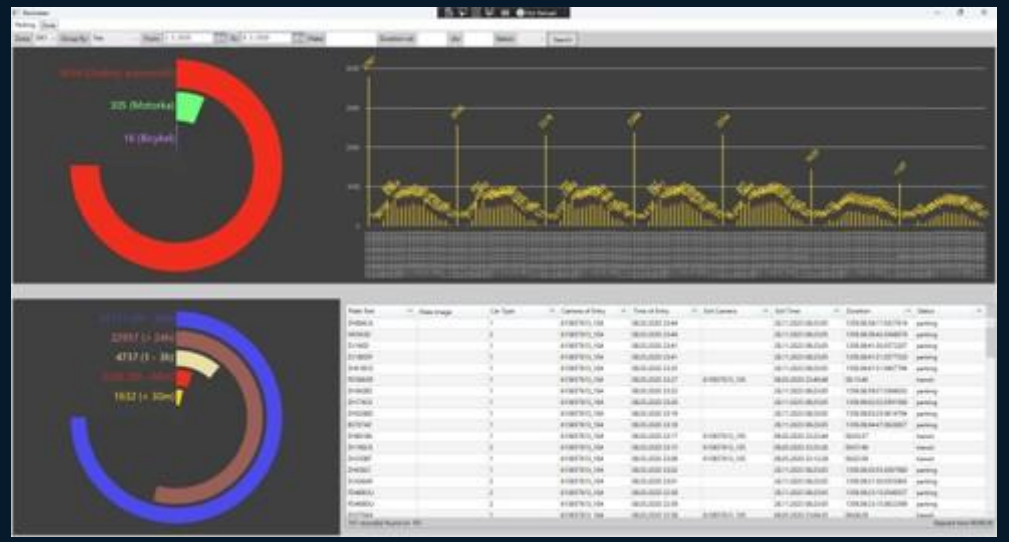


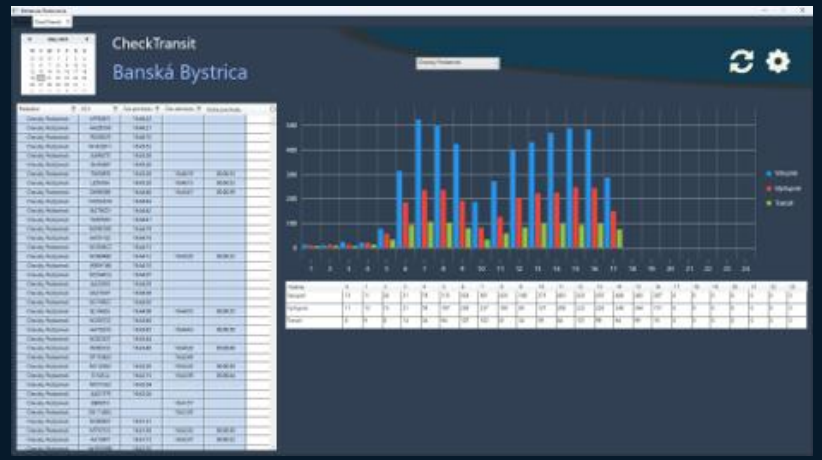
Typical outputs include trajectories, defined counting lines, direction-based totals and comparisons by hour, day or month.

Dashboards and reporting

PERIMETER INFORMATION FROM TRANSPORTATION







Sensor choice follows the height, coverage, privacy and connectivity requirements

VISION

AI stereo and RGB

Detailed counting and analytics where the scene and privacy assessment allow vision sensing.

DEPTH

ToF sensing

Anonymous depth-based counting for entrances and regional occupancy.

SIMPLE COUNTERS

PIR, thermopile and beam

Lower-complexity counting for passages or presence use cases.

OUTDOOR

Protected devices

Outdoor versions, high-mount options and site-specific housings or power systems.

INTERFACES

MQTT / HTTPS | Open APIs | LoRaWAN | Ethernet

Installation height, entrance width and an unobstructed view directly influence coverage and accuracy.

HDS delivers the complete counting solution from site survey to reporting

DESIGN

Measurement plan

Define what to count, where to measure, expected accuracy and required outputs.

PILOT

Field validation

Install a representative location, tune zones and verify the results against reference observations.

INTEGRATION

Operational data

Connect sensors, dashboards, alerts, exports and third-party systems.

SERVICE

Lifecycle support

Monitor device health, maintain configurations and adapt reporting as needs change.

People, vehicles, parking and occupancy in one HDS delivery framework.

www.hdsas.eu