AUTOMATED ROAD INSPECTIONS

Data-driven, smart maps for effective maintenance planning

INSPECH
AUTOMATED ROAD INSPECTION

Miles ahead.

LONGITUDINAL CRACK

Automate the repetitive task of your inspectors

Infrastructure authorities spend billions per year on inspecting and maintaining roads, traffic signs, street lights, and other road assets. Manual visual inspection is a time-consuming task requiring a significant amount of human effort. Delays lead to more significant problems such as costly repairs, traffic congestion, and even accidents. Extending the life of our most valuable assets is a primary goal that has to be managed continuously through programmatic inspection and preventative works.

Today, many industries are struggling with a lack of skilled specialists to perform expert-level tasks in crucial positions, such as road inspections.

INSPECH closes this skills gap by transforming human expert knowledge into the form of a digital inspector that learns as it goes, is highly scalable and automates the repetitive inspection tasks that were once slow, inconsistent and costly.

What we see is what you get

1

INSPECH in short:

- **Automatically identifies** the presence and exact locations of **common defects** in road surfaces such as cracking and potholes;

- **Calculates Severity Ratings**, based on the Pavement Condition Index (PCI) to produce condition assessments of inspected routes;

- Provides configurable **interactive reports** and graphical management information;

- Displays defect data on digital maps from within the system, effectively creating **a digital twin.**
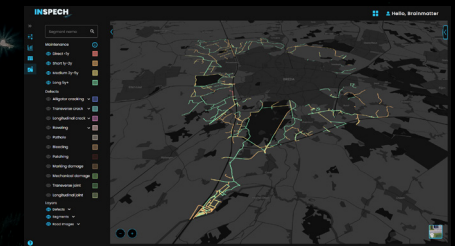
2

INSPECH accurately and consistently analyzes the images rapidly and classifies the detected damages according to your regions standards.
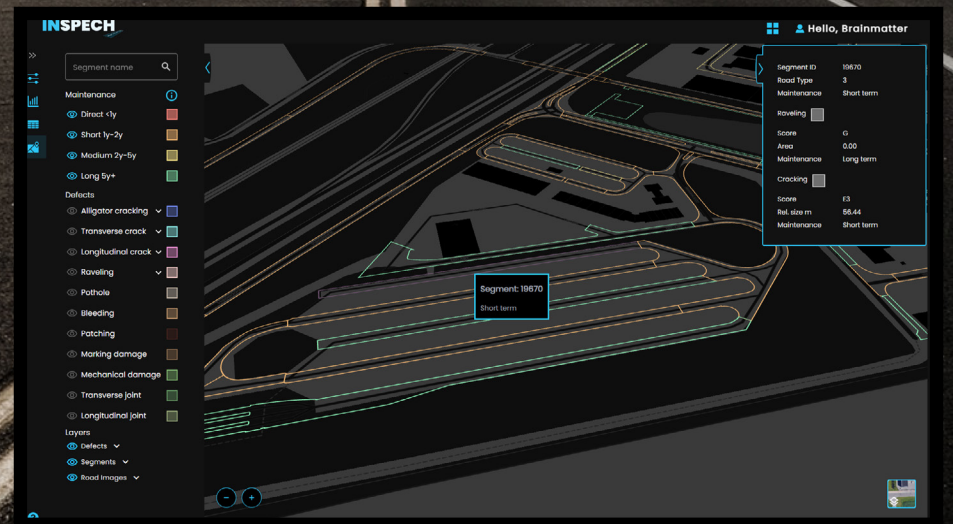

3

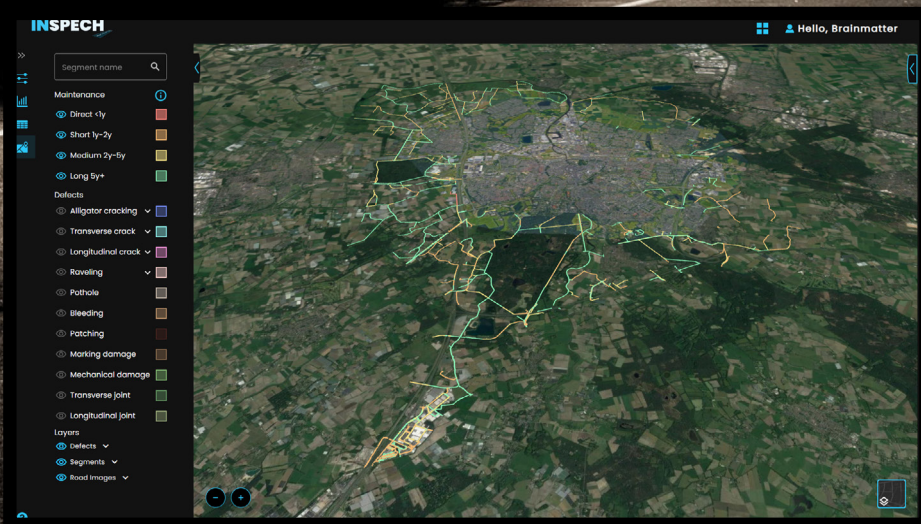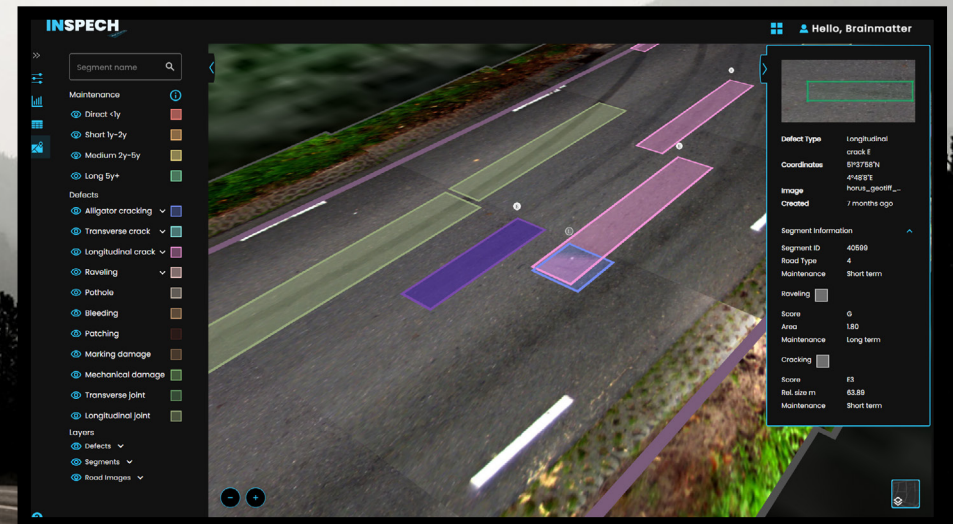Geospatial analysis provides immediate insights into the condition of the inspected area. After the last mile check, interactive reports can be shared.

Keywords are **accuracy**, **consistency** and **speed**. **INSPECH** is designed by road inspectors for road inspectors. It uses Artificial Intelligence technology to adapt and learn as you go. You can also extend the range of asset classes to be inspected.

A dynamic digital twin

The state of the inspected area is visible at a glance on the highly interactive, digital map. **IN**SPECH colors road sections according to maintenance deadlines in compliance with applicable regulations and plots individual damage on the map. In addition, **IN**SPECH also plots orthographic images on the map so that you can view and edit specific road damages from behind your desk.

How **INSPECH** will help you

| Assisted Visual Inspection (AVI)

Human inspectors no longer have to do the mundane manual visual inspections themselves. Instead, they can **focus on the results** and high-value areas of their work. This means you can rapidly **scale your business** by performing many more road inspections faster and at less cost, as well as **effectively bridging the skills gap** because you don't need to hire more inspectors.

| Editing capabilities for inspectors

Your experts can review and even edit the results easily in an **interactive viewer** - essentially working with the digital twin of your road. They can dynamically **create and publish reports** and analyze the condition ratings provided, in the information dashboard. With this expert oversight, the information and reports you share with your end-clients are always **accurate and high quality**.

| Win bids for large projects

Departments of Transport commonly issue DBFM (**Design, Build, Finance & Maintain**) agreements to cooperating consortia that act as operating companies for the construction, management and maintenance of roads. These are usually long-term contracts that can run for 25 years or more and they can often have strict terms relating to ongoing road condition and life cycle management. Using **INSPECH** in these contracts enhances your maintenance service offering by providing the capabilities to **effectively manage routine and preventative maintenance** with all the documentation and proof points you will need to satisfy the most demanding clients.

| Interactive reporting

The interactive viewer may also be made available to your end clients on a subscription basis. They will have **continuous access** to their own data and can review and run reports as often as they like. They do not, however, have access to editing features.

Why **INSPECH** is a way better road to take

IT'S FASTER

Incredibly fast post-processing, inspect more roads in less time.

IT'S CHEAPER

Low rates per lane mile, SaaS subscription model, browser based, no CAPEX, smaller vehicles, less fuel and CO2 emission reduction as a bonus.

IT'S FLEXIBLE

Fully compliant with any road assessment standards, cloud-based reports sharing, human expert interaction with inspection results.

IT'S MORE ACCURATE

Individual defect level detection, defect measurement, human expert oversight.

IT'S MORE CONSISTENT

Driven by an Artificial Intelligence, learns continuously.

IT'S EASIER

Automated PCI severity ratings, automated reporting, visualized on digital twin maps.

80% SAVINGS IN INSPECTION LABOR **60%** FEWER INSPECTION DAYS TO COVER MILEAGE
60% LESS POST INSPECTION DATA PROCESSING **50%** LESS VEHICLE & DRIVER COST **80%** QA LABOR SAVINGS (reinspection)

INSPECH
Product Specifications

1 Automatic defect detection

2 Inspection editing on the map

3 Automated pavement condition reporting

4 Interactive report viewer for customers

5 Annotation of custom defects on map

6 Continuous optimization for local conditions

7 Ability to extend the defect taxonomy

Including 4 defect types
✓
✓
✓
✓
✓
✓

Using deep technology, **IN**SPECH disrupts the infrastructure management market by using Artificial Intelligence to take over time consuming, repetitive tasks from human inspectors. As an end-to-end solution, **IN**SPECH identifies defects in the road surface in real-time, optimizes the deployment of road maintenance and enables organizations to sustain the infrastructure at a lower cost.

1 **Automatic defect detection**
INSPECH automatically detects defects of the following four defect types:
- Alligator cracking
- Longitudinal cracks
- Transverse cracks
- Potholes

2 **Inspection editing on the map**
In order to review and complete an inspection with **IN**SPECH, the results can be edited on the map. The shape, label, and severity class of a detection can be edited and new detections can be added.

3 **Automated pavement condition reporting**
INSPECH automatically generates reports of the defects and pavement condition of the inspected area, based on **IN**SPECH's standard condition assessment. The pavement condition score per segment can be viewed in table view and is depicted in map view through the coloring of road segments by score. These reports can be downloaded as .XLSX or .SHP files.

4 **Interactive report viewer for customers**
Once the inspection process of the area is finished, an interactive report link can be shared with customers, allowing them to view the inspection results on the map in the **IN**SPECH Viewer.

5 **Annotation of custom defects on map**
In addition to the defect types automatically inspected by **IN**SPECH, other defects of your required taxonomy can be added to the viewer so they can be reviewed manually on the map during the inspection process.

6 **Continuous optimization for local conditions**
A feedback loop is enabled to gather data during your inspection process that is used to optimize the performance of **IN**SPECH for the conditions of roads in your local domain.

7 **Ability to extend the defect taxonomy**
In order to automate your inspection process even further, **IN**SPECH's automatic detection capabilities can be expanded by gathering examples of additional defect types, for the purpose of further training **IN**SPECH.

INSPECH
in practice

It is possible to optimally train **IN**SPECH for different purposes, making it very versatile while guaranteeing reliability, consistency, accuracy and safety.

Reliable, consistent, secure and safe

With **IN**SPECH, which can be deployed 24/7, you benefit from a significantly shorter lead time, reducing your costs along the way. The system also detects side objects and you always have access to full reports.

With an annual subscription, it is possible to assess deterioration over time by means of a trend analysis, leading to reliable predictions about surface lifespan and maintenance measures in the long term.

This is how **IN**SPECH differentiates

A major and important difference between **IN**SPECH and other digital road inspection providers is that with **IN**SPECH it is the human expert who performs a final check on the inspected area before a report is approved and shared with the end customer. This last mile check is of great importance to guarantee maximum quality of the final inspection results.

This distinctive character lies in our unique business model. While our competitors are mostly software companies with no background in civil engineering, **IN**SPECH is a collaboration between a highly specialized machine learning company and an established domain partner specializing in traditional road surface inspection, repair and maintenance. By merging the best of both worlds, we are maximising the value of both man and machine. **IN**SPECH is literally unrivalled as a provider of digital road inspections.

INSPECH automates

- The inspection of asphalt and concrete pavements;
- MicroPaver™ airport pavement inspections;
- Minor maintenance inspection;
- Winter damage inspection;
- Measure and specification inspection;
- Inspection for location-oriented maintenance.

THERE IS A DIGITAL CLONE BEHIND EVERY HUMAN EXPERT. INSPECH USES ARTIFICIAL INTELLIGENCE TO SCALE YOUR BUSINESS.

PERCEIVE

INSPECH views thousands of kilometers of road footage. Every inch on every lane is carefully examined at high speed.
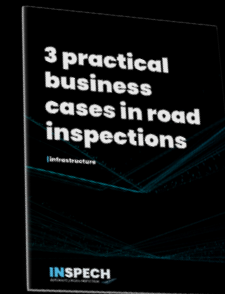
DECIDE

INSPECH recognizes a wide variety of defects, deterioration and anomalies, while keeping track of their exact location.

RESPOND

INSPECH processes the detections to generate an interactive report, facilitating decision-making for the long-term management of roads.

Create a better understanding

How digital technology drives significant changes in road inspection

3 practical business cases in road inspections

Automated Digital Road Inspection

Free eBooks for you to download
On our website, free eBooks are made available for you to download. Go to **www.inspech.com** and get your copy now.

Summary

- Get faster, more consistent & reliable results;
- Fully compliant with road assessment standards;
- Share reports with ease in a cloud-based SaaS environment;
- Inspect more roads in less time;
- Interact with inspection results in an online viewer;
- Export results in standard formats (ESRI Shapefile, XLS) online;
- Reduce road maintenance costs and maintain road safety.

We are looking to
expand our ecosystem

| FREE REVENUE

We partner with infrastructure companies that perform road inspections to resell automated road inspection as a service in their local markets and beyond.

Does your client portfolio include road authorities, road construction companies, councils and any form of government? Become a reselling partner and rapidly scale your business!

SCHEDULE A MEETING

INSPECH.com / +31 (0) 203 697 260

"Thanks to Inspech's digital road inspector, we can now deliver full reports within days, which previously could take up to five weeks for a single road."

- Jeroen Bleeker, CEO at Unihorn

———————

"Inspech performs the same as a trained and certified human inspector. It's like having a giant team of inspectors running a marathon."

- Mark Zwart, Owner at AMVision

Cooperation is key, see **INSPECH** in action.

We understand that it is a lot to take in and that some of it might even look a bit complicated. Learn how easy it actually is to use **INSPECH**.

SHOW ME