



Content from International Conference on Asphalt 4.0 2022 in Madrid

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8th International conference ASPHALT PAVEMENTS 2023
Opatja 11. - 12.05.2023.

#ICA4point0

- ▶ Thank you for giving me the opportunity to be here, one more year, and especially in this year 2023.
- ▶ We celebrate the 50th Anniversary of EAPA and Asefma !!

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The image shows a website landing page for the 8th International Conference on Asphalt Pavements 2023. The page features a dark background with a blurred image of a speaker at a podium. The main text reads "SEPTEMBER 26-27, 2023" and "8th INTERNATIONAL CONFERENCE ON ASPHALT 4.0". A countdown timer shows 138 days, 0 hours, 33 minutes, and 8 seconds remaining. A prominent blue "REGISTER" button is centered below the timer. The top navigation bar includes links for HOME, ABOUT, SCHEDULE, SPEAKERS, SPONSORSHIP, LOCATION, and DOWNLOAD THE APP. The bottom of the page displays key event details: DATE (September 26-27, 2023), LOCATION (Orense 34, Madrid), REMAINING (150 Tickets), and SPEAKERS (24 Professional Speakers).

ICA 4.0 INTERNATIONAL CONFERENCE ON ASPHALT 4.0

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SEPTEMBER 26-27, 2023

8th INTERNATIONAL CONFERENCE ON ASPHALT 4.0

138 DAYS 0 HOURS 33 MINUTES 8 SECONDS

REGISTER

DATE September 26-27, 2023

LOCATION (MEETING PLACE) Orense 34, Madrid

REMAINING 150 Tickets

SPEAKERS 24 Professional Speakers

8th International conference ASPHALT PAVEMENTS 2023
Opatja, 11. - 12.05.2023.

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- ▶ On September 20 and 21, 2022, was the first **International Conference on Asphalt 4.0** was held in Madrid
 - ▶ organized by ASEFMA and ZAS with the support of EAPA
 - ▶ https://ica4point0.com/wp-content/uploads/2022/10/Finalreport-ICA4point0-_English.pdf
- ▶ the second edition will be on **September 26-27, 2023**
- ▶ The website of the event: <https://ica4point0.com/>

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- ▶ The main sponsor was MOBA and the bronze was Fliegl
 - ▶ 12 communications were received from 5 countries: 4 from Spain, 3 from Germany, 2 from Slovenia, 2 from the Netherlands and 1 from France
 - ▶ The **#ICA4point0** was developed in PDV format: Face-to-face (P) plus Digital (D) and also Virtual (V) App “PDV by itafec”

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- ▶ From the App "PDV by itafec" consult the abstracts at:
 - ▶ <http://ow.ly/aVV350KMHzu>
 - ▶ and download the papers from the App
 - ▶ or from:
 - ▶ <https://ica4point0.com/>



asefma
@asefma_es

¿Conocéis las doce comunicaciones técnicas del congreso #ICA4point0?

🇪🇸 España: 4
🇩🇪 Alemania: 3
🇸🇮 Eslovenia: 2
🇳🇱 Países Bajos: 2
🇫🇷 Francia: 1

Consultad resúmenes en: ow.ly/aVV350KMHzu y si estáis inscritos ¡descargad los textos completos desde la app #PDVbyitafec!

ICA 4.0
ZAS
MÁS
MÁS

Los textos completos de las doce comunicaciones seleccionadas para el congreso internacional sobre asfalto 4.0 ICA 4.0 se pueden descargar desde la app del evento.
0:15 31 reproducciones

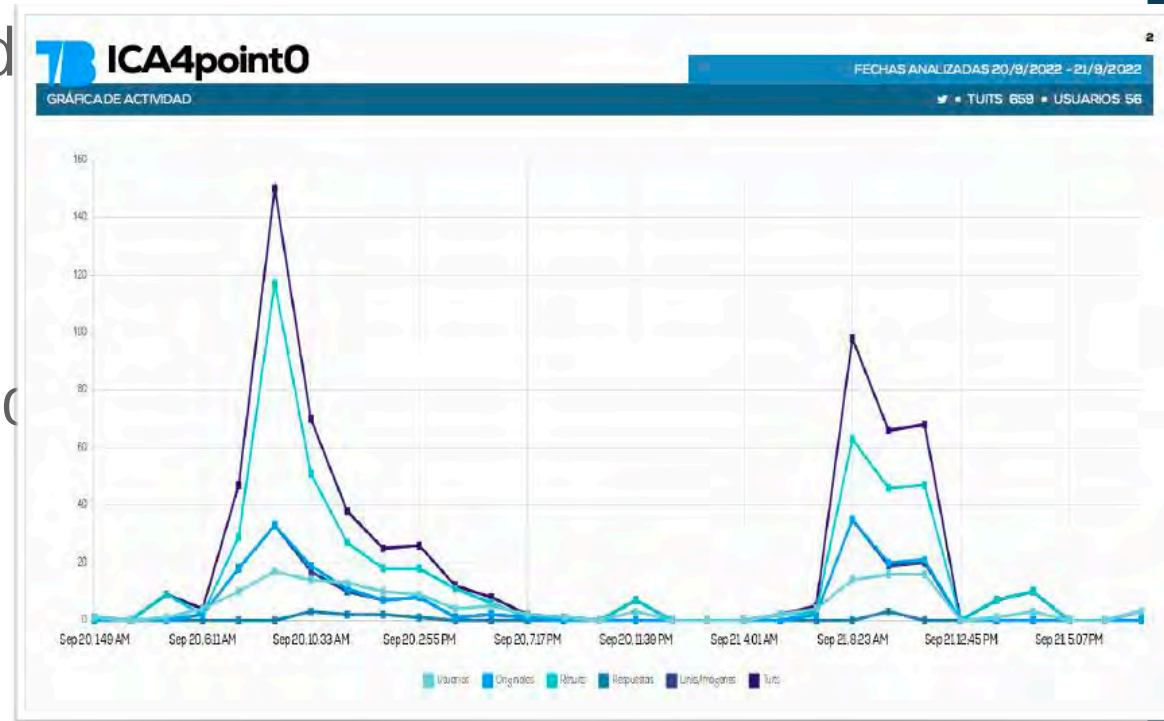
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- ▶ From the App “PDV by itafec” you can access to the 12 abstracts, to the 12 complete papers and even, send a message to the authors



Digital activity #ICA4point0

- ▶ Sesión 1 "Digitalization: a shared space between road administrations and road contractors"
- ▶ sesión 4 "Digitalization applied to maintenance and use stage of roads"



Evolution of social media activity using #ICA4point0 during the 20 and 21 september

Ideas #ICA4point0

- ▶ There are 2 or 3 revolutions at the same time (digital, environmental and energy)
- ▶ Assess the effectiveness of investments with big data traffic behavior
- ▶ Include digital and environmental evaluation criteria in the offers:
- ▶ associated emissions or sectorial EPD



Presentations #ICA4point0



The image shows a LinkedIn post from itafec. The post features a video thumbnail of Miguel Caso Flórez, PIARC Technical Director, and a promotional graphic for the 'International Conference on Asphalt 4.0'. The graphic includes the event dates (20-21 September 2022) and location (Madrid, Spain). It also lists the organizers (50 años asfma and ZAS) and the supporting organization (EAPA). The post text discusses digitalization in the asphalt paving value chain and provides contact information for Miguel Caso Flórez.

itafec

International Conference on Asphalt 4.0

International Conference on Asphalt 4.0

20-21 September 2022
Madrid, Spain

Organisers:
50 años asfma
ZAS
EPA
Supporting organization:
EAPA

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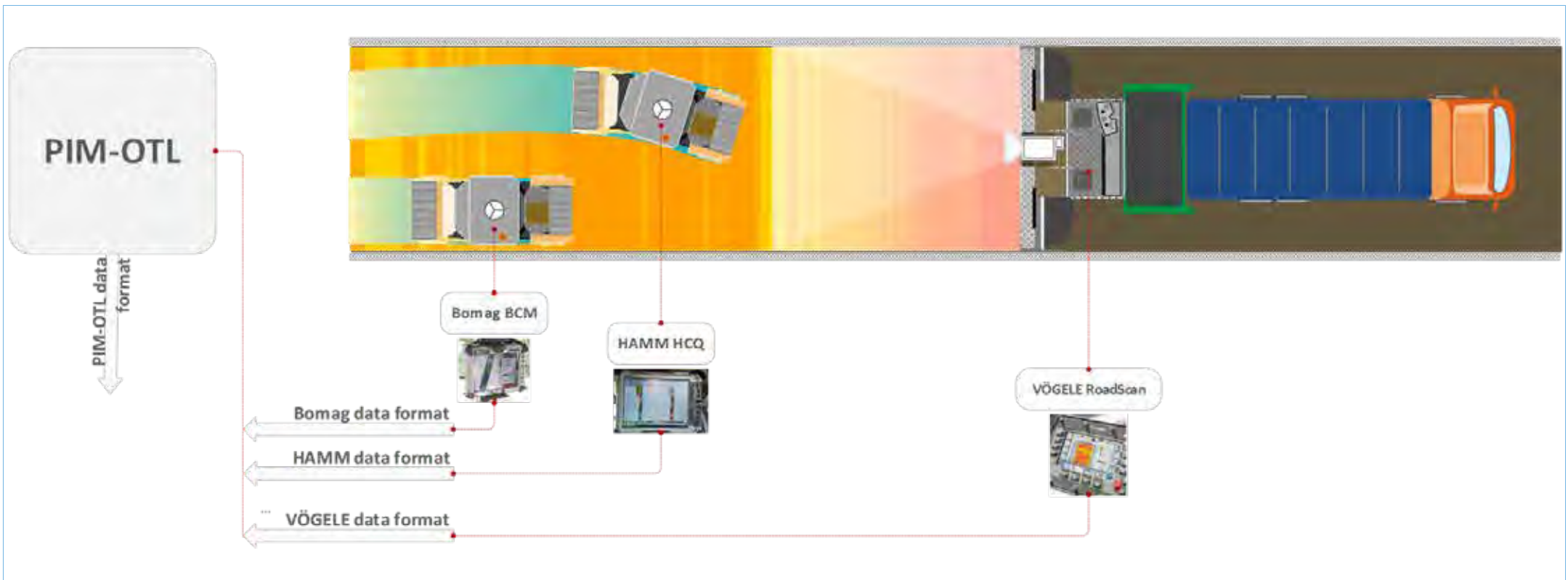
Digitalization in the chain value of asphalt paving for roads

Miguel Caso Flórez, PIARC Technical Director miguel.caso-florez@piarc.org

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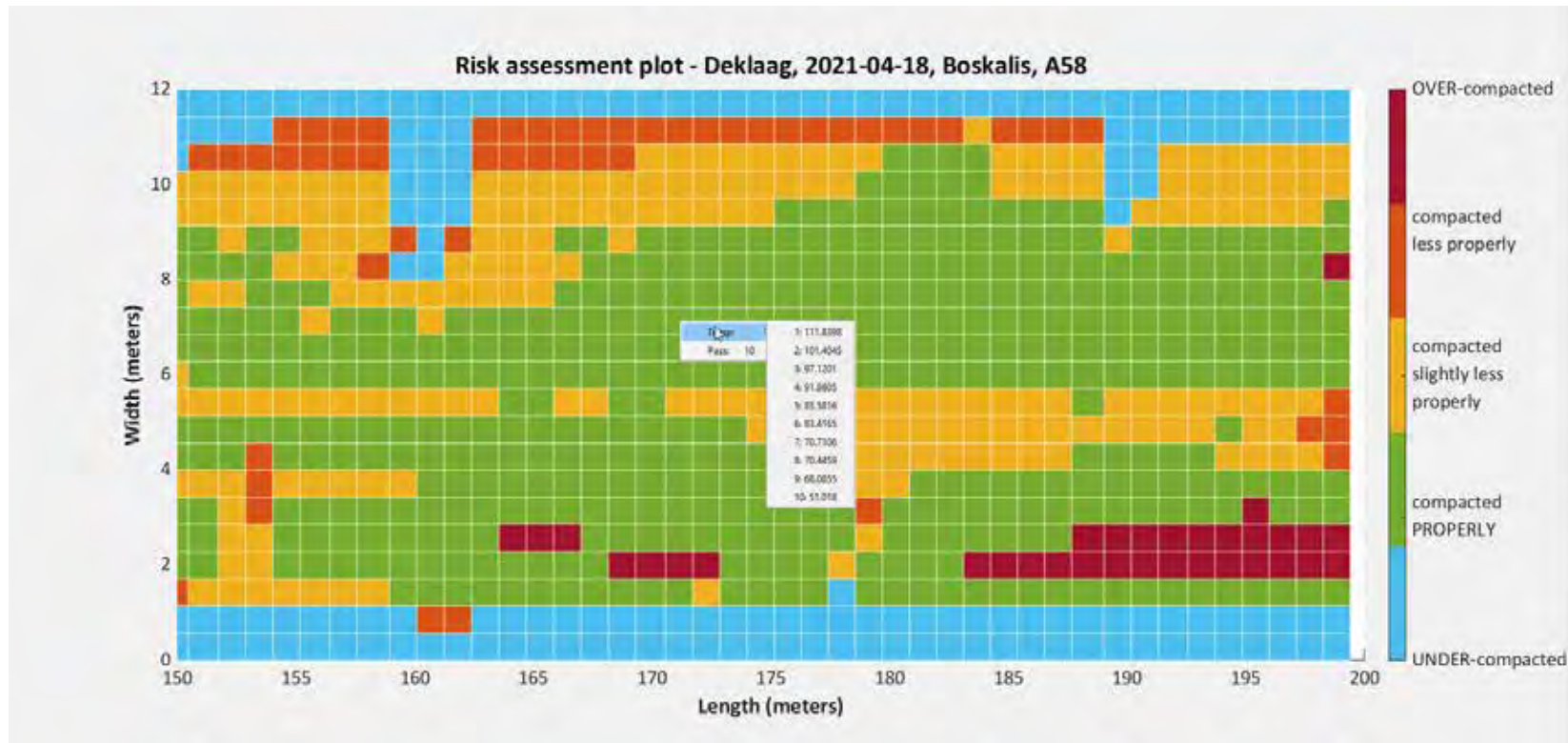
A practical application: Digital Twin



#ICA4point0



A practical application: Digital Twin



#ICA4point0

International Conference on

Asphalt 4.0

20-21 September 2022
Madrid, Spain

#ICA4point0

Organisers:



ZAS

Združenje asfalterjev Slovenije
Slovenian Asphalt Pavement Association

Supporting
organization:

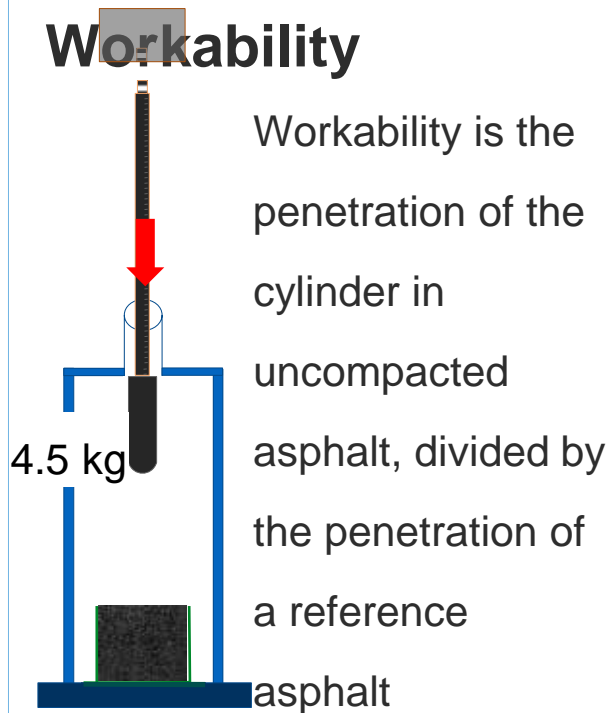


Digital design of asphalt

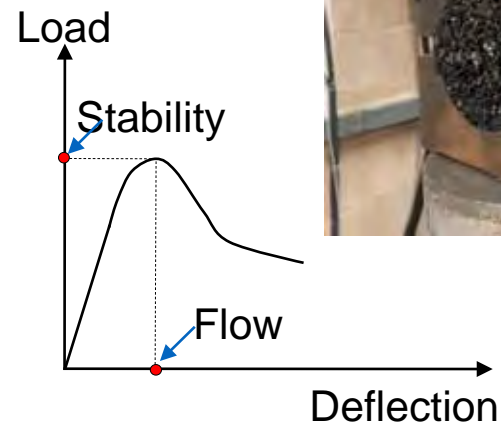
Alvaro Garcia Hernandez (alvaro.garcia@nottingham.ac.uk), Frank Awuah, Liyao Wan, Sonia Michot Roberto, Santiago Dopazo Hilario

Asphalt mix design based on...

1. Workability

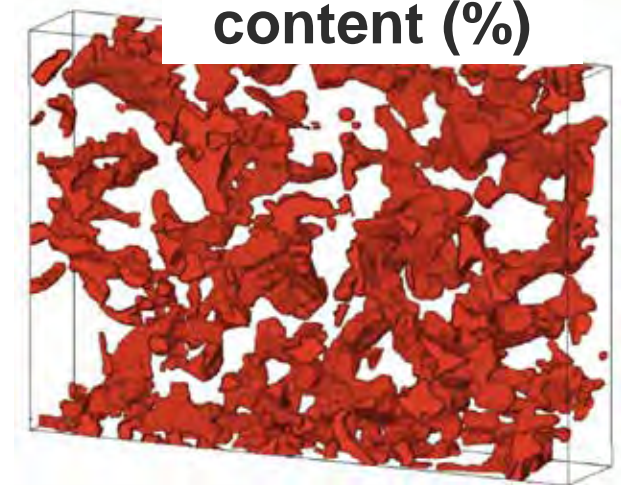


2. Marshall stability



3. Flow

4. Air void content (%)

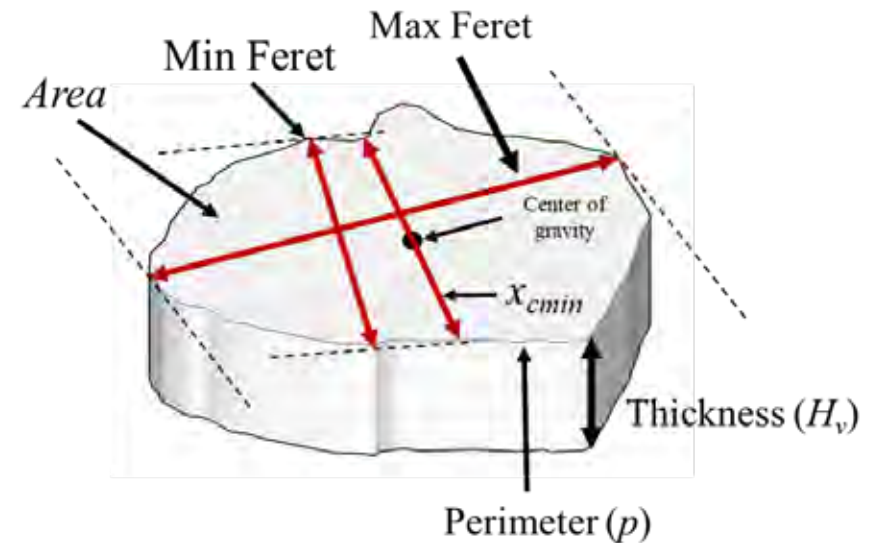


M. Aboufoul . A. Garcia, Factors affecting hydraulic conductivity of asphalt mixture, Materials and Structures (2017) 50:116

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Step 1: Measure virtual aggregates

1. Photograph aggregates



2. Measure topologies:

- Aspect Ratio and Height (Weibull scale and shape factors)
- Minor Feret (Weibull scale and shape factors)

- Perimeter, median
- Area, median

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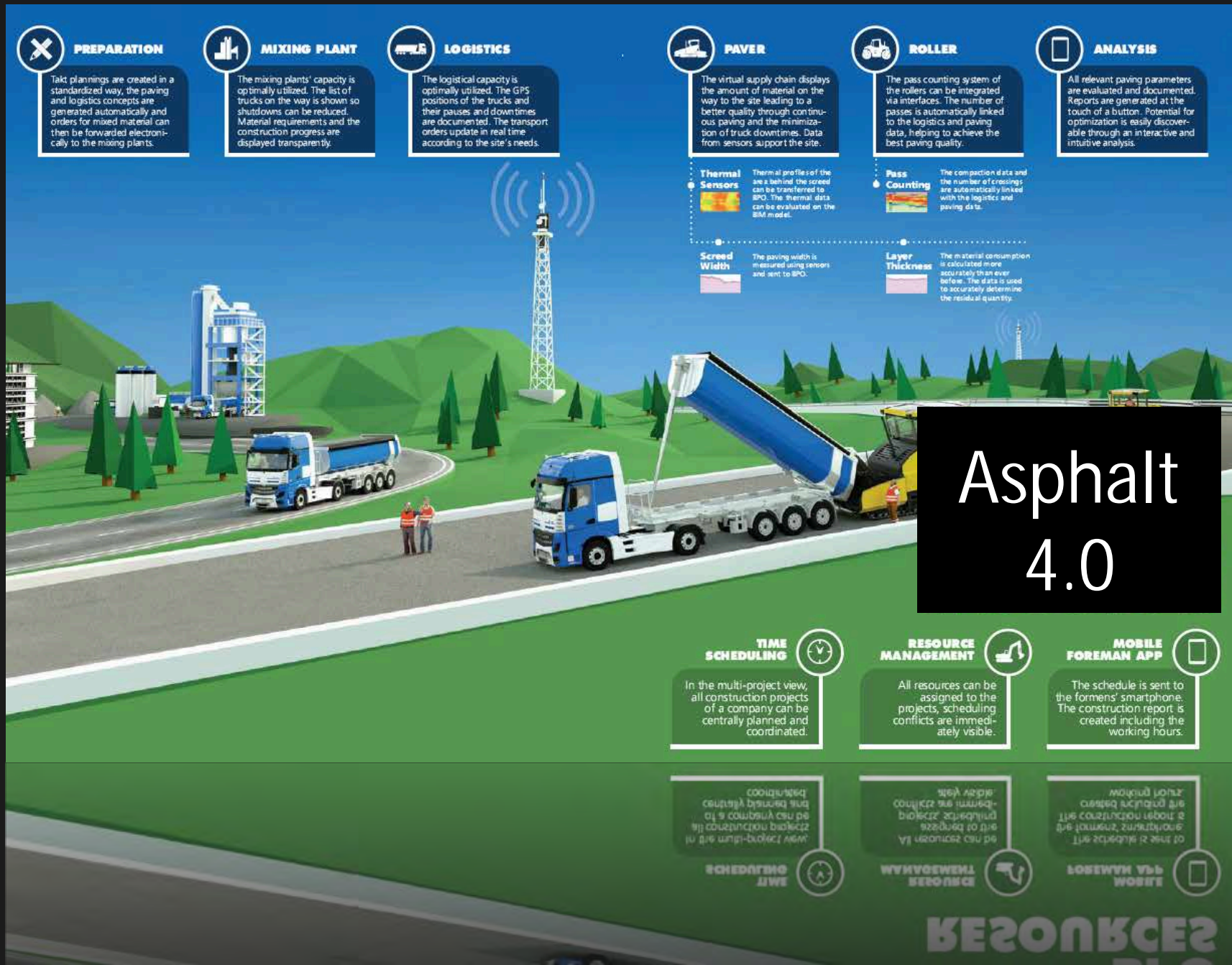
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Conclusions

- ▶ We can combine data- and physics-based models to design asphalt.
- ▶ To create accurate asphalt recipes, collecting aggregate geometries is very important.
- ▶ We can paint realistic mastic skeletons, and have learned to paint the mastic over these skeletons.
- ▶ We may be able to use the 3D models of asphalt to calculate additional properties, such as macrotexture. However, this will be future research.

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ASPHALT 4.0 APPLIED TO THE PAVING PROCESS

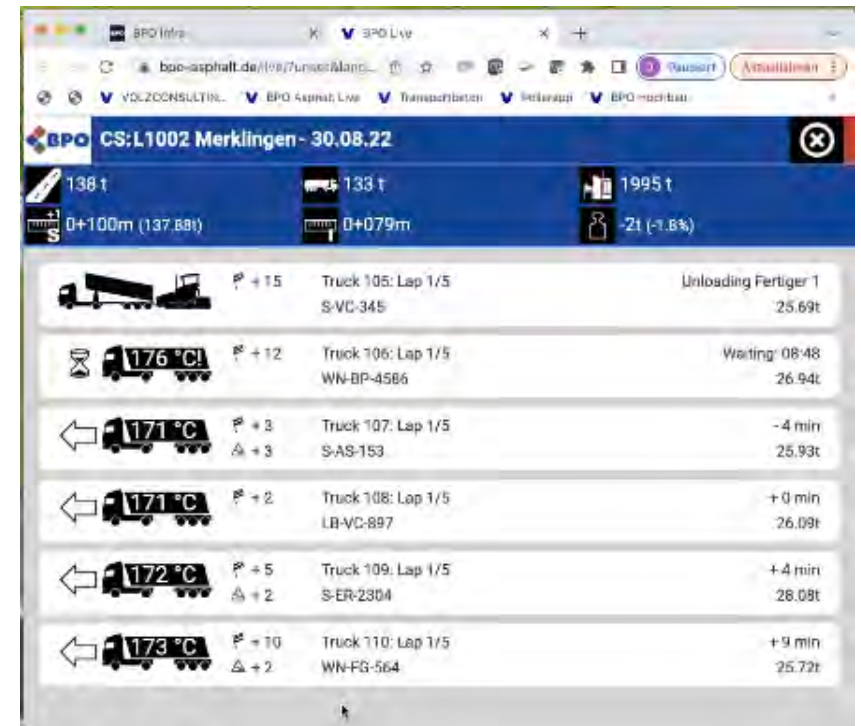


Developments #ICA4point0

- ▶ There are from project data
 - ▶ A BIM integration
 - ▶ Resource allocation
 - ▶ Management and monitoring in real time



Developments #ICA4point0



ASPHALT 4.0 APPLIED TO THE PAVING PROCESS

ASPHALT 4.0

PLANNING

BPO ASPHALT standardizes the planning of construction sites. The basis for process optimization is created by a clearly defined process of work preparation similar to a checklist. With BPO ASPHALT this is as simple as it is intuitive:

In the **project planning**, the geometry is determined using the integrated CAD module and the masses are calculated. The construction sequence is then defined and the individual construction sections are assigned to the respective days. Changes can easily be entered in just a few moments, on the go.

In the **logistics planning**, the daily mix requirements are calculated. This results in the necessary number of trucks. The loads are optimally matched to the demands of the site process and time specifications for mixing plants and each truck driver are created. This minimizes waiting times for trucks and the construction site in advance.

The results are bundled in the paving and logistics concept, material orders as well as loading and unloading lists. These target values serve as the basis for the target-actual comparison in the real-time system.

REAL TIME



TARGET-ACTUAL COMPARISON

During the paving process, actual data is compared to target data in real-time and illustrated clearly for site managers and foremen.



LOCATING TRUCKS WITH GPS

The trucks can be easily localized either via the free app "BPO Live" or via an interface connected to a fleet management system.



WEIGHING SYSTEM

The interface connection between BPO and the weighing system automatically supplies all parties on site with data from the delivery notes. The interface is easy to set up.



TEMPERATURES

Temperatures can be obtained for every delivery note. An interface connection to the thermography establishes integration and evaluation of the thermal profile.



PASS COUNTING SYSTEM

The roller passes can be assigned to each section in the data model (BIM). Via GPS it is clear how much and which delivery note is compacted and how hot the asphalt was.



ELECTRONIC DELIVERY SYSTEM

The signature is digitally captured on site with BPO and sent to BPO Materials to generate the delivery note. In real time, all relevant data is included and ready for invoicing.



INDIVIDUALLY EXPANDABLE

Do you have further ideas or requests for your system? This is not a problem! BPO is individually expandable and can be customized to fit the needs of each client specifically.

REAL-TIME NETWORK



Weighing bridge, truck logistics and sites are connected in real-time, to guarantee holistic controlling and the ability to intercede in time.

CONSTRUCTION DIARY



Samples, temperatures or progress can be documented in the construction diary. For the analysis, all of the data will be assigned to the delivery notes.

QR CODE



If there is no existing interface connecting the weighing bridge, all necessary data can be gathered through the QR code on the delivery note and transferred to BPO.

PAVING VARIETIES



BPO Asphalt supports all paving varieties. Regardless of whether you are working with a paver, by hand in small sites, hot to hot paving or compact asphalt.

SENSOR DATA

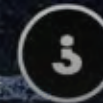


Sensor data can be integrated into BPO, as well as the width of the screed and the layer thickness measurements. Thermography is also integrated in BPO. All data can be evaluated digitally.

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