

A JOHN DEERE COMPANY

 WIRTGEN GROUP

EMERGING DIGITAL TECHNOLOGIES

Craig Lamarque
V.P. Digital Products - Wirtgen America



Emerging Technologies in Roadbuilding ?

3D Site Modeling

Intelligent Construction

Drones & AI Mapping

E-Ticketing

Real-time Project Monitoring

Precision RTK

Digital-As-Built

LIDAR & Ground Penetrating Radar

Autonomous / Robotic Equipment

COMMON CHALLENGES

**DELIVER
MORE**

**Construction
Projects
Infrastructure
Road Miles
Quality**

**Materials / Resources
Personnel
Costs
Time**

**WITH
LESS**

Equipment Solutions



PRODUCTION SYSTEM SOLUTIONS

Offer comprehensive equipment and solutions

Productivity
Efficiency
Sustainability



JOBSITE SOLUTIONS

Business optimization through data delivery and analysis.

Bidding

Planning

Execution

Documentation

Invoicing

Analysis



DIGITAL TRANSFORMATION



CONNECTED SUPPORT

Increase uptime

JOBSITE INTELLIGENCE

Better decisions based on
comprehensive facts

SMART AUTOMATION

Maximize performance

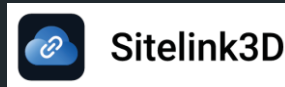
Jobsite Intelligence

Telematics / Site Management Platform



VISIONLINK®

KOMTRAX



Questions to Ask

- > Data ownership
- > Functionality beyond standard telematics – PM, productivity data, APIs, etc.
- > Costs – hardware, messaging, data export, etc.

Jobsite Intelligence

Better decisions due to comprehensive information



Jobsite Intelligence

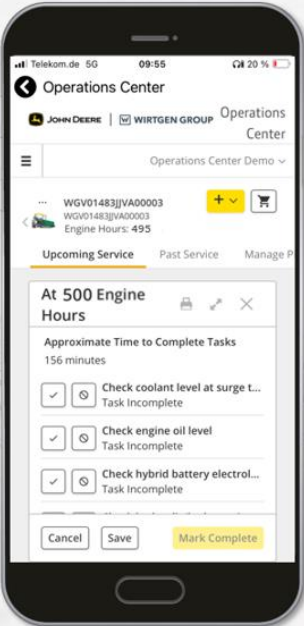
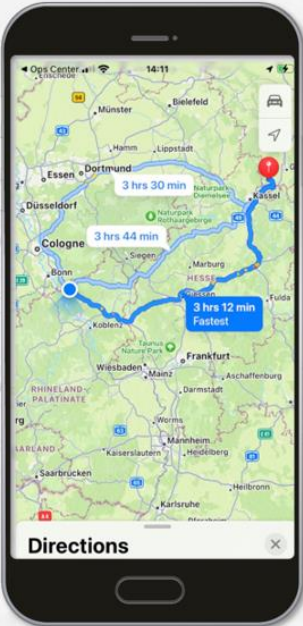
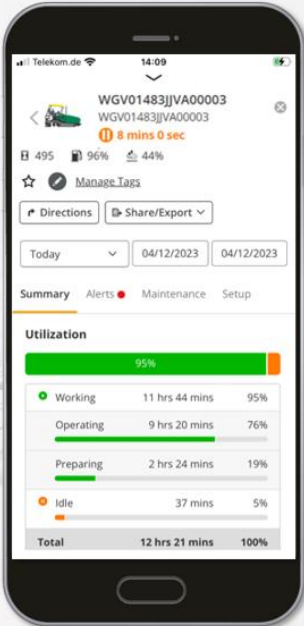
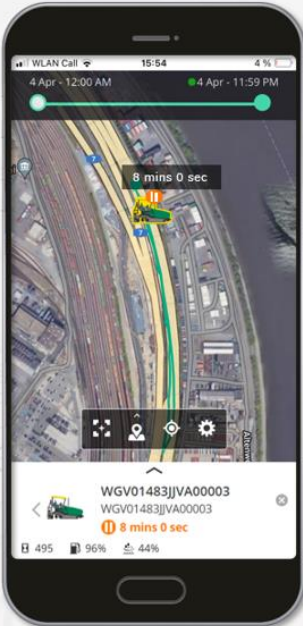
Operations Center Data Flow

You Own Your Data!



Jobsite Intelligence

Operations Center Functionality



Jobsite Intelligence

Operations Center Functionality - Jobsites

JOHN DEERE
 WIRTGEN GROUP
Operations Center

Map
Setup
Plan
Analyze
More

Jobsite Name*

Start Date

July 29, 2024 7:49 AM

Completed

August 9, 2024 10:28 PM

[Reopen jobsite](#)

Summary **Equipment**

Inactive (15)

- K-0503**
Last activity: Aug 9, 2024 7:50 AM
- K-0505**
Last activity: Aug 8, 2024 9:49 AM
- K-0515**
Last activity: Aug 3, 2024 6:55 AM
- K-0598**
Last activity: Aug 2, 2024 12:01 PM
- K-1120**
Last activity: Aug 6, 2024 3:08 PM
- K-1121**
Last activity: Aug 9, 2024 10:28 PM
- K-1122**
Last activity: Aug 2, 2024 3:36 PM

K-2229

WGW01422AW/A00006

37 minutes ago

3.390 62% 0% 91%

[Manage Tags](#)

[Directions](#) [Share/Export](#)

[Click here to view all equipment details.](#)

Summary Productivity Alerts Maintenance

5 Aug 2024 - 7 Aug 2024

Utilization

89%
11%

Working 30 hr 3 min 89%

Idle 3 hr 45 min 11%

Total 33 hr 48 min 100%

Hours of Operation 33 hr 42 min

Day	00	12	00
7 Aug	[Bar chart showing operation hours]		
6 Aug	[Bar chart showing operation hours]		
5 Aug	[Bar chart showing operation hours]		

On Off Unavailable

Fuel Performance

Work State	Totals	Rates

5 Aug - 12:00 AM

7 Aug - 11:59 PM

Jobsite Intelligence

Better decisions due to comprehensive information

 WIRTGEN GROUP



Jobsite Data & Information



Work Planner



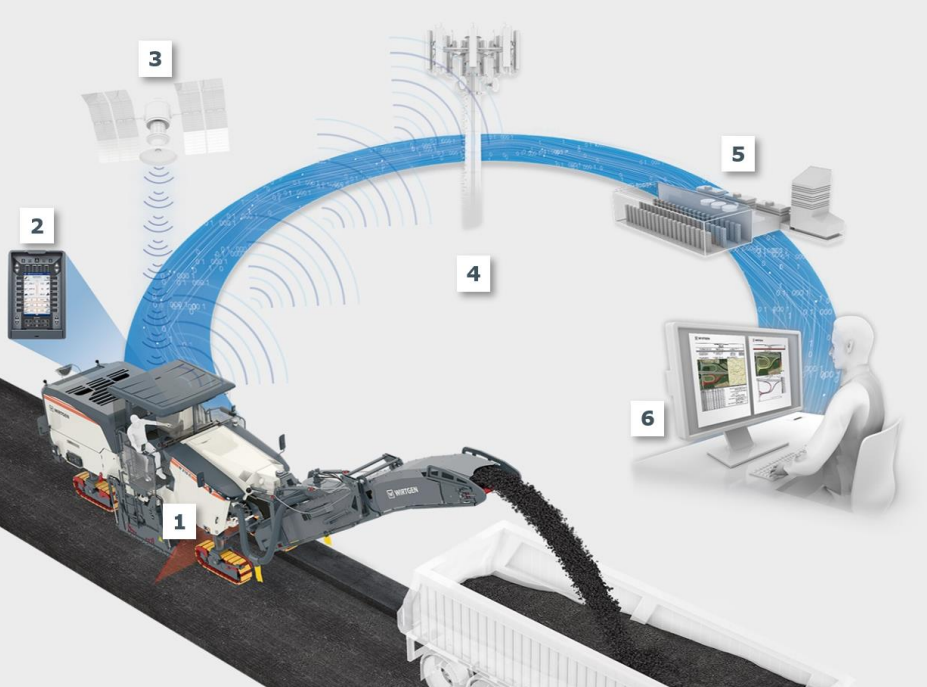
Analytics



Wirtgen Group Performance Tracker - WPT

Jobsite Intelligence

WPT Milling



- 1 Laser scanner** to measure the cross-sectional profile to be milled
- 2 Control panel** on the operator's platform with current milling data
- 3 Satellite connection** for precise position sensing
- 4 Mobile connection** to transmit the data
- 5 Data centre** to automatically generate the WPT report
- 6 WPT report** with the most important performance and consumption data for the materials requirements planner

Jobsite Intelligence

WPT Milling

WIRTGEN

Wirtgen Performance Tracker Report
L1075, 07639, Bad Klosterlausnitz, Thüringen, 03.04.2019

operator: **Andreas**

operator	start	end	area [m²]	volume [m³]	weight [t]	fuel [l]	water [l]	fuel rate [l/h]	water rate [l/h]	weight rate [t/h]	volume rate [m³/h]
Andreas	03.04.2019 06:30	03.04.2019 14:33	3072,7	892,6	1,1	2403,6	12,1	49,6	152,7	0,2	5,0

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2320 0001
Wirtgen Performance Tracker Report
L1075, 07639, Bad Klosterlausnitz, Thüringen, 03.04.2019

general information

job begin: 03.04.2019 06:30
 job end: 03.04.2019 14:33
 order no.: BAUMA 2019
 time zone: GMT+02:00

overview milling performance

total area ¹⁾ [m²]:	3072,7	total volume [m³]:	892,6
of which uncertain ²⁾ [%]:	1,1	total tonnage [t]:	2400
milling distance ³⁾ [m]:	2403,6	of which not loaded [t]:	0
Ø milling depth [cm]:	12,1	Ø material density [kg/m³]:	41

JOHN DEERE **WIRTGEN GROUP** Operations Center

Map Setup Plan Analyze More

Jobsite Name*
Rodabben

Start Date April 7, 2025 8:02 AM

Complete Jobsite

Summary Equipment Weather
Apr 7, 2025 8:00 AM - Apr 7, 2025 11:59 PM

Milling Edit Target

788 m³ of 985 m³ volume

Performance	46 m³/h
Distance	4.847 m
Area	6.703 m²
Volume	788 m³
Weight Loaded	1.831 t
Weight Not Loaded	0 t
Consumption	
Fuel Rate	49,6 l/h
Fuel Usage	0,8 l/m³
Fuel Total	637,5 l
Water Rate	1,534 l/h
Water Usage	6,5 l/m³
Water Total	5.128 l
Utilization	
Working	10 hr 17 min 80%



Summary Equipment

Nov 14, 2025 6:00 AM - Nov 14, 2025 2:00 ...

Milling

Performance	31 yd³/h
Distance	7.876 ft
Area	5,094 yd²
Volume	223 yd³
Tons	46,2 ton
Tons not loaded	0 ton
Consumption	
Water Usage	5,0 gal/yd³
Water Total	1,117 gal
Water Rate	152,7 gal/hr
Fuel Usage	0,2 gal/yd³
Fuel Total	51,1 gal
Fuel Rate	6,6 gal/hr
Utilization	
Working	7 hr 4 min 92%
Idle	38 min 8%
Total	7 hr 42 min 100%

Jobsite Intelligence

WPT Paving - Coming Soon



3.6m
WIDTH

975m
LENGTH

15cm
THICKNESS

**WPT
PAVING**

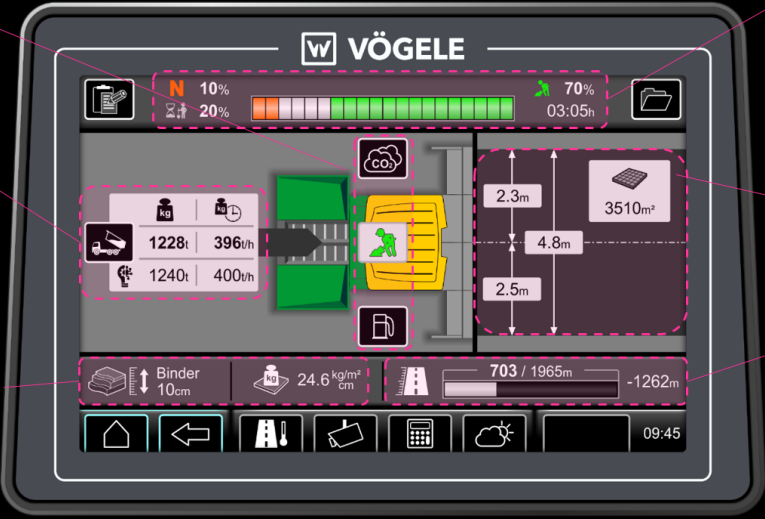
Jobsite Intelligence

WPT Paving – On Board Tractor Console

Work Done Data
CO₂ Emission &
Fuel Consumption

Paving Performance
Paved Tonnage Calculated
Actual vs Design

Layer Characteristics
Thickness & Density
Entered



Jobsite Utilization
Idle | Preparing | Working

Paved Surface
Calculated using
Screed Width from
Sensor & Distance
Paved

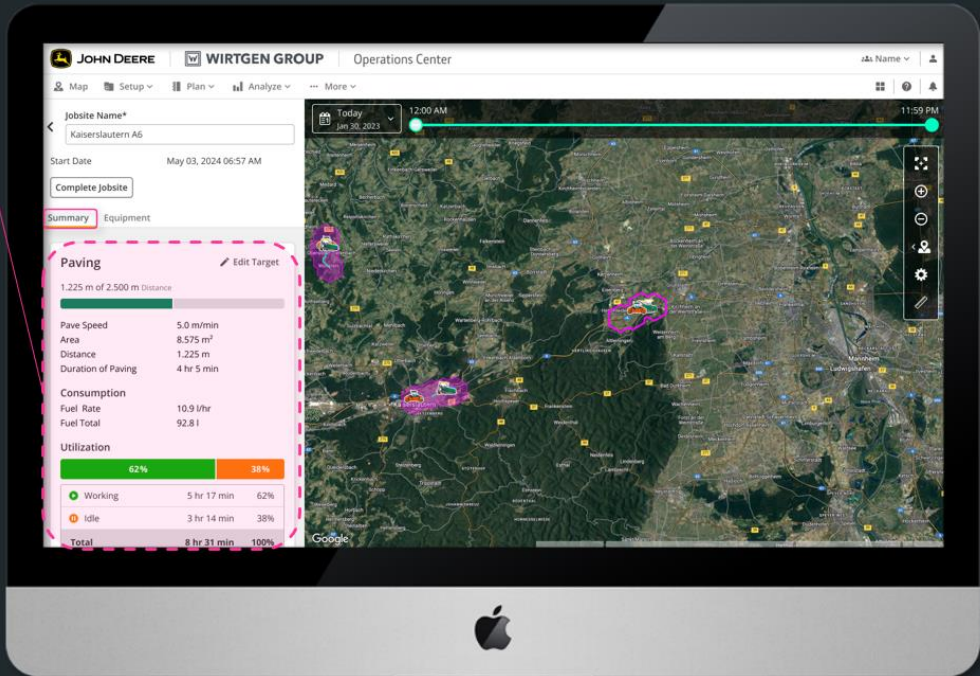
Progress Bar Distance
Precise Distance Paved

Jobsite Intelligence

WPT Paving – Off Board in Operations Center

Jobsite Summary Card

- Ave. Paving Speed
- Paved Area
- Paved Distance
- Paving Time
- Fuel Consumption



Jobsite Intelligence

Thermal Profiling



Jobsite Intelligence

RoadScan – Coming Soon

- > High-precision thermal camera
- > Compact dimensions and low weight ensure easy transportation and simple installation
- > Temperature measurement up to a working width of 42ft
- > Measured value resolution of $\sim 3^{\circ}\text{F}$
- > Measuring point size 4" x 4"
- > Measurable temperature range between 32°F and 530°F with a tolerance of only $\pm 2\%$



Jobsite Intelligence

WPT Compacting - Coming Soon



Jobsite Intelligence

WPT Compacting - Coming Soon

Map | Setup | Plan | Analyze | More

JOHN DEERE | WIRTGEN GROUP | Operations Center

HAMM AG - R&D

Map | Welcome Patrick | Jobsites

Equipment | Jobsites

Open | Completed

Search

Jobsite state

February 10, 2025

- Start 3:53 PM **Johnston Unnamed Road**
Last activity: Feb 10, 2025 3:55 PM
- Start 3:13 PM **Arnstein Straße Ohne Straßenna...**
Last activity: Feb 10, 2025 4:00 PM
- Start 3:10 PM **Elkhart Northeast 110th Avenue S...**
Last activity: Feb 10, 2025 3:11 PM

February 7, 2025

- Start 1:56 PM **Kaiserslautern Straßburger Allee ...**
Last activity: Feb 10, 2025 11:00 AM
- Start 11:23 AM **Pune Johan Deere Main Road 2025...**
Last activity: Feb 10, 2025 8:47 AM

February 6, 2025

- Start 8:59 AM **Cañal Travesía Río 11**
- Start 5:39 PM **Moline 24th Avenue 3137 2025-02...**
Last activity: Feb 10, 2025 3:09 PM
- Start 2:23 PM **İzmit Yankı Sokak 22 2025-02-06T1...**
Last activity: Feb 6, 2025 2:33 PM

Compacting: Surface Course
Pass Count

Compare | Overlay | Share/Export

13%
5%
5%
20%
30%
11%

Opacity

0% | 100%

Google | Summary | Data Analysis | Timeline

Kartendienste ©2025 GeoBasis CE/BAO (©2025) Bilder ©2023 Airbus, Maxar Technologies | Nutzungsbedingungen | Fehler bei Google Maps melden

2025 Compacting Surface Course: Pass Count		Work Totals		Performance		Equipment	
View in Work Analyzer		Temperature	4 °C	Compacting Time	22 min	WGHOH299KHAA00007	WGHOH299KHAA00007
Start	5 Feb. 2025 12:37	Pass Count	5	Speed	3 km/hr	WGHOH303EHAA00002	WGHOH303EHAA00002
End	6 Feb. 2025 09:24			Total Fuel	1.1 l		
Operators				Fuel Rate (Time)	3 /hr		
						Edit Delete	

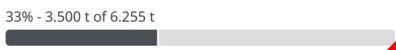
14-46
11.02.2025

Jobsite Intelligence

WPT Crushing – Available Now

Jobsite Name*
Quarry Göppingen - Product 1

Start Date April 17, 2023 9:54 PM



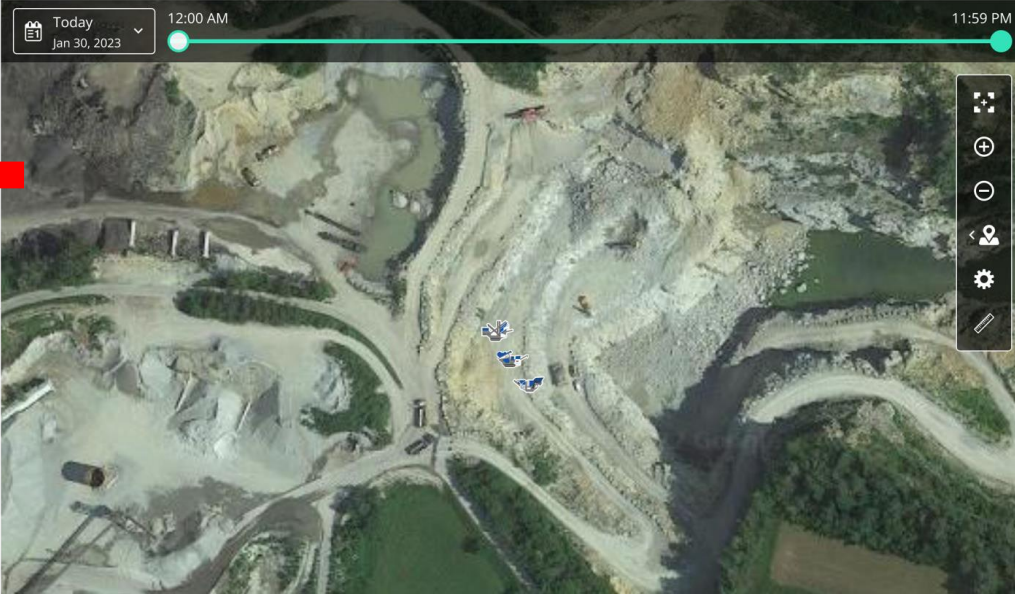
[Complete Jobsite](#) [Move Equipment](#) [Edit Target](#)

Today

Summary [Equipment](#)

CRUSHING

Final Product	# t
Performance	# t/h
Fuel Total	# l
Fuel Rate	# l/h



DIGITAL TRANSFORMATION



CONNECTED SUPPORT

Increase uptime

JOBSITE INTELLIGENCE

Better decisions based on
comprehensive facts

SMART AUTOMATION

Maximize performance

Smart Automation

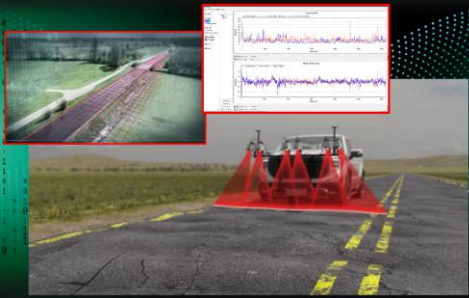
Wirtgen Smart Level PRO

A New Dimension in Leveling Technology



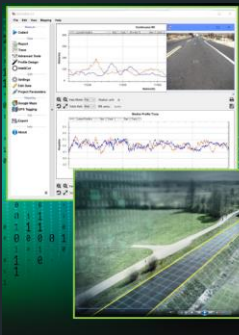
Smart Automation

Wirtgen Smart Level PRO



GENERATING DATA

- + SCANNING CURRENT ROAD PROFILE
- + GET ACTUAL SURFACE [SCANNED MODEL]



PROCESSING DATA

- + PLANNING TARGET SURFACE [DESIGN MODEL]
- + UPLOAD PRE-PLANNED DATA IN JD OpsCENTER



Smart Automation

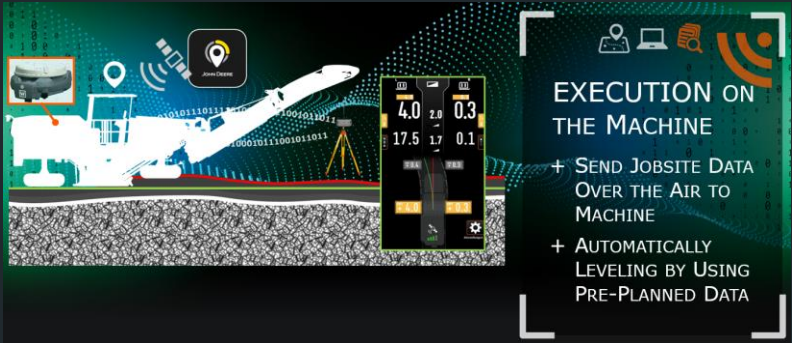
Wirtgen Smart Level PRO



WIRTGEN GROUP
Work Planner

ANALYSE DATA

- + CLEAN BUILD ANALYSIS
- + VISUALIZATION OF JOBSITE RESULTS



EXECUTION ON THE MACHINE

- + SEND JOBSITE DATA OVER THE AIR TO MACHINE
- + AUTOMATICALLY LEVELING BY USING PRE-PLANNED DATA

4.0	2.0	0.3
17.5	1.7	0.1

Smart Automation

Wirtgen Smart Level PRO - Benefits

- Optimized process planning before job starts.
- Simple machine operation using a high definition 3-D data model.
- Delivers a higher quality final surface from an evenness and accuracy standpoint.
- Fully intergrated OEM solution offers:
 - Eliminates the time consuming activities to install and remove 3rd party hardware.
 - Intergration in Operations Center offers efficient jobsite planning, monitoring and full documentation.

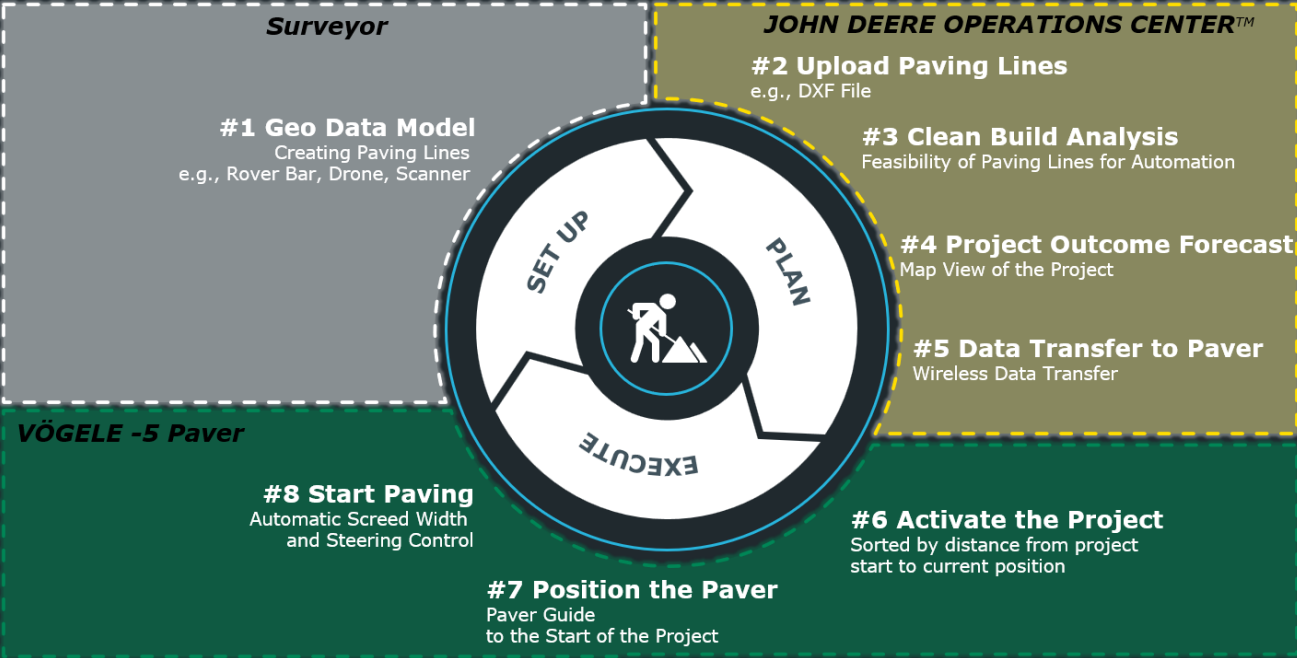
Smart Automation

Vögele Smart Pave – Coming Soon



Smart Automation

Vogele Smart Pave – Coming soon



Smart Automation

Vogele Smart Pave Benefits

WORK SAFETY

the operator does not have to stand directly at the control panel



TIME SAVING

no need to pre-mark the edge of the road



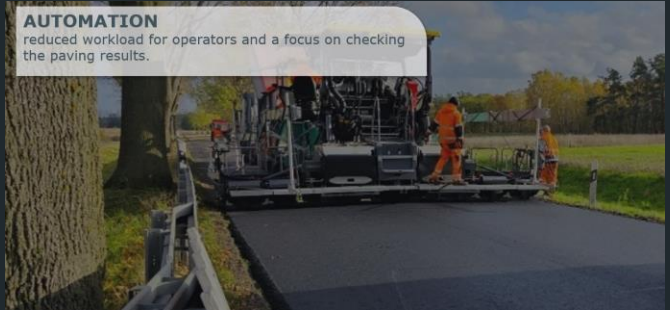
MATERIAL SAVINGS

no overbuilding of the target width



AUTOMATION

reduced workload for operators and a focus on checking the paving results.



Smart Automation

Hamm Smart Compact Basic & PRO – Available Now



SMART COMPACT BASIC & PRO



Smart Automation

Hamm Smart Compact Basic & PRO – Available Now



Smart Compact Basic



Realtime Density Scan

Smart Automation

Hamm Smart Compact Basic & PRO – Available Now

HMV value



Smart Compact Basic

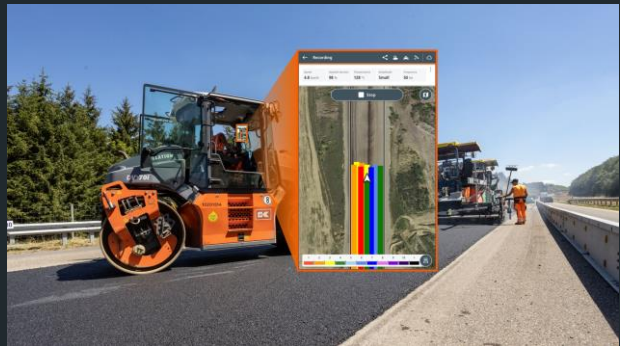
Real-time density



Smart Compact Pro

Smart Automation

Track Assist – Coming Soon



Smart Automation

Hamm Smart Compact Basic & PRO Benefits

Basic:

- Helps inexperienced operators be more productive and efficient.
- Enables a higher quality finished surface.

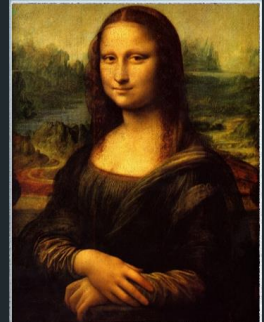
PRO:

- Digital control and targets enable optimum density in optimum time.
- Reduces the need for constant QC/QA monitoring.
- Compaction data is more complete and is documented.

Gauge / Cores



Smart Compact Pro



A JOHN DEERE COMPANY

 WIRTGEN GROUP

THANK YOU

CLOSE TO OUR CUSTOMERS

