



By appointment  
to HM The Queen  
motor car manufacturers  
Bentley Motors Limited  
Crewe Cheshire



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to HRH The Prince of Wales  
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**BENTLEY**

## Press Information

### **BENTLEY'S GRAND TOURERS: MORE COMPOSED THAN EVER - THROUGH ADAPTIVE MUSIC**

- **Demonstration Bentley uses Artificial Intelligence to compose soundtrack to match driving style**
- **The first application of 'adaptive music' in the automotive industry, in partnership with LifeScore**
- **First steps of innovation to provide a more immersive driving experience**
- **Recorded in full sphere surround sound at the world famous Abbey Road Studios**
- **Sound bank library delivers more than 100 billion unique musical experiences**

**(Crewe, 23 June 2021)** After extensive research and development testing, a demonstration Bentley now has the ability to compose a soundtrack based upon drivers' inputs and driving style. The vehicle generates a live, composition of instrumental music in real-time enhancing the emotional experience of every journey.

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Partnering with LifeScore, industry experts in the field of 'adaptive music', the goal is to have music that adapts to the ever changing driving conditions and the driver's style - from relaxed grand touring to energetic, spirited driving on dynamic roads.

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Bentley and LifeScore are working together creating algorithms that allow vehicle inputs (such as engine RPM and acceleration) to influence the composition in real time, constantly adapting depending on the driving situation. This true driver-vehicle-music synchronisation is an industry first.



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Every journey results in a real time user experience that is deeply personalised. The signals from the vehicle create a unique sonic soundscape that responds to how and where the vehicle is being driven and under what conditions. Rather than listening to music to distract from travel, the vehicle is now able to compose an instrumental soundtrack to engage with the journey.

LifeScore utilises world-class musicians, contemporary and classical instruments and cutting edge technology for recording at the world famous Abbey Road Studios. All of the audio elements are recorded in fully ambisonic (full sphere surround sound) audio using more than 50 microphones to provide for all possible future formats. In the cabin of the future, sound can be designed to come from any direction at the highest possible resolution.

From a sound bank library containing a comprehensive suite of audio data and recordings, more than 100 billion unique music tracks can be composed for a 60 minute drive - more than the number of stars in the galaxy.

Aligned with Bentley using craftsmanship and latest technical advancements to deliver the highest quality possible, LifeScore recently won Business Cloud's MediaTech Innovators award for 2021.

### **Composition through Craftsmanship and Innovation**

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This innovative approach combines human-composed and performed music, which can then be algorithmically reproduced on demand by the vehicle and delivered via the class-leading cabin.

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The composers and musicians create building blocks (cells) of raw musical material, which the vehicle then selects, combines, layers and sequences together to produce the final music in real time. The result is endless varying renditions that can be unique on every listen for long durations without sounding repetitive or synthetic.

For example, when playing music in a *Cocoon* mode, as the vehicle is winding through town, the music builds and evolves slowly, and when cruising speed is achieved, the music is sustained and deeply calming. When *Enhanced* driving mode is engaged, the music is highly reactive and more exciting, sensing transmission changes, acceleration and torque, resulting in a high-intensity audio experience where driving style and sound are inextricably linked. Using artificial intelligence, the software optimises the responses in creation of the music for the driver.

The algorithms are designed to produce compositions that flow through themes and variations achieved by maximizing coherence, minimising repetition of cells and other AI-techniques. Therefore, one hours' worth of human composed cells will generate practically unlimited hours of music.

This demonstration Bentley will provide the baseline data needed to develop the system ready for Bentley's first full Battery Electric Vehicle.

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### Notes to editors

Bentley Motors is the most sought-after luxury car brand in the world. The company's headquarters in Crewe is home to all of its operations including design, R&D, engineering, Mulliner and production of the company's three model lines, Continental, Flying Spur, and Bentayga. The combination of fine craftsmanship, using skills that have been handed down through generations, alongside engineering expertise and cutting-edge technology is unique to UK luxury car brands such as Bentley. It is also an example of high-value British manufacturing at its best. Bentley employs around 4,000 people at Crewe.

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