



# Predictive Analytics – From Engine Compartment to Engine Room

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NEWARK, NJ --- 4.0 Analytics, Inc. is a software and data analytics company focused on the transportation sector. While most of us are familiar with the “Check Engine” light on our car’s dashboard, 4.0 has taken this simple trouble indicator to a whole new level of sophistication. Instead of simply monitoring and reporting a malfunction, 4.0’s Mechanic on Board® (MoB) and EmCARST<sup>TM</sup> (Emission Compliance And Reporting System) technologies use proprietary “predictive methodologies” to identify potential system failures so they can be prevented before they occur. Nostradamus move over!

“These next generation tools arm repair mechanics with highly sophisticated diagnostics and performance information captured while the vehicle is actually on the road versus what’s not visible in the service bay. Adding wireless communications, motorist or fleet owners can voluntarily and electronically report their emission compliance status to state motor vehicle agencies thus eliminating the need go to an inspection station” said 4.0’s CEO Mark L. Scotland.

In the past, when we had “scheduled maintenance” performed on our vehicles we often ended up replacing parts that were in perfect working order and far from the end of their service life. What is true for our vehicle’s engine compartment is also true for the engine room and advanced operating systems aboard the vessels of the U.S. Navy.

4.0 Analytics in collaboration with a small group of other firms is proposing a predictive analytics approach being evaluated by Lockheed Martin Company, a major DoD contractor, to enable what the Navy refers to as “condition based maintenance or CBM.” With CBM the Navy can identify equipment that is likely to fail and repair or replace it before it does. CBM also delivers the benefit of not replacing equipment that is in perfect working order just because a pre-determined date has arrived, thereby saving taxpayer dollars.

The predictive analytics developed by 4.0 helps our vehicles improve fuel efficiencies, reduce maintenance costs, reduce risk, reduce carbon emissions and extend the vehicle lifecycle. This technology can do the same for U.S. Navy vessels where equipment reliability is of the highest order. 4.0’s proprietary algorithms and analytics can assist the Navy in performing maintenance ahead of failures, minimize repairs, improve ship and fleet readiness and reduce maintenance and logistics (on board spares) costs.

Ed Morrison, Director of Purdue University’s Agile Strategy Lab and a facilitator of the Navy collaboration, applauded 4.0’s key role in the process stating, "Open innovation presents big challenges for smaller companies. Finding the right balance between participation and protection is not easy for most of these companies. Mark Scotland and 4.0 Analytics intuitively understand the balance point. They model the behavior that both large and small companies need to see to make the open innovation process work. At Purdue, we have designed protocols to guide open innovation and the formation of these complex collaborations. In our

experience, 4.0 Analytics is one of the handful of smaller companies that deeply understands these protocols from the start."

We often think of progress in technology and innovation as a dividend from space exploration or DoD advances. It's encouraging to learn that technology that started out under the hood of our car may find its way to the engine room of an aircraft carrier.

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**4.0 Analytics, Inc.** 4.0 Analytics uses wireless telecommunications technology to transmit and report valuable data that improves efficiencies and reduces operating costs on vehicles. 4.0 Analytics has developed a software solution that facilitates real time monitoring of vehicle engine and emissions data. The company's data provides outputs leading to meaningful reductions in fuel costs, maintenance costs and carbon emissions. 4.0 is capable of providing the interface devices that reside on the vehicle along with ongoing system monitoring. The company can alternatively integrate its software system into an existing vehicle monitoring infrastructure.