

Strengthening the Supply Chain

National Academy of Sciences Symposium
July 26, 2010



Tom Watson
Vice President, Research & Development
Johnson Controls – Power Solutions



Confidential and Proprietary

A Day in the Life

Home



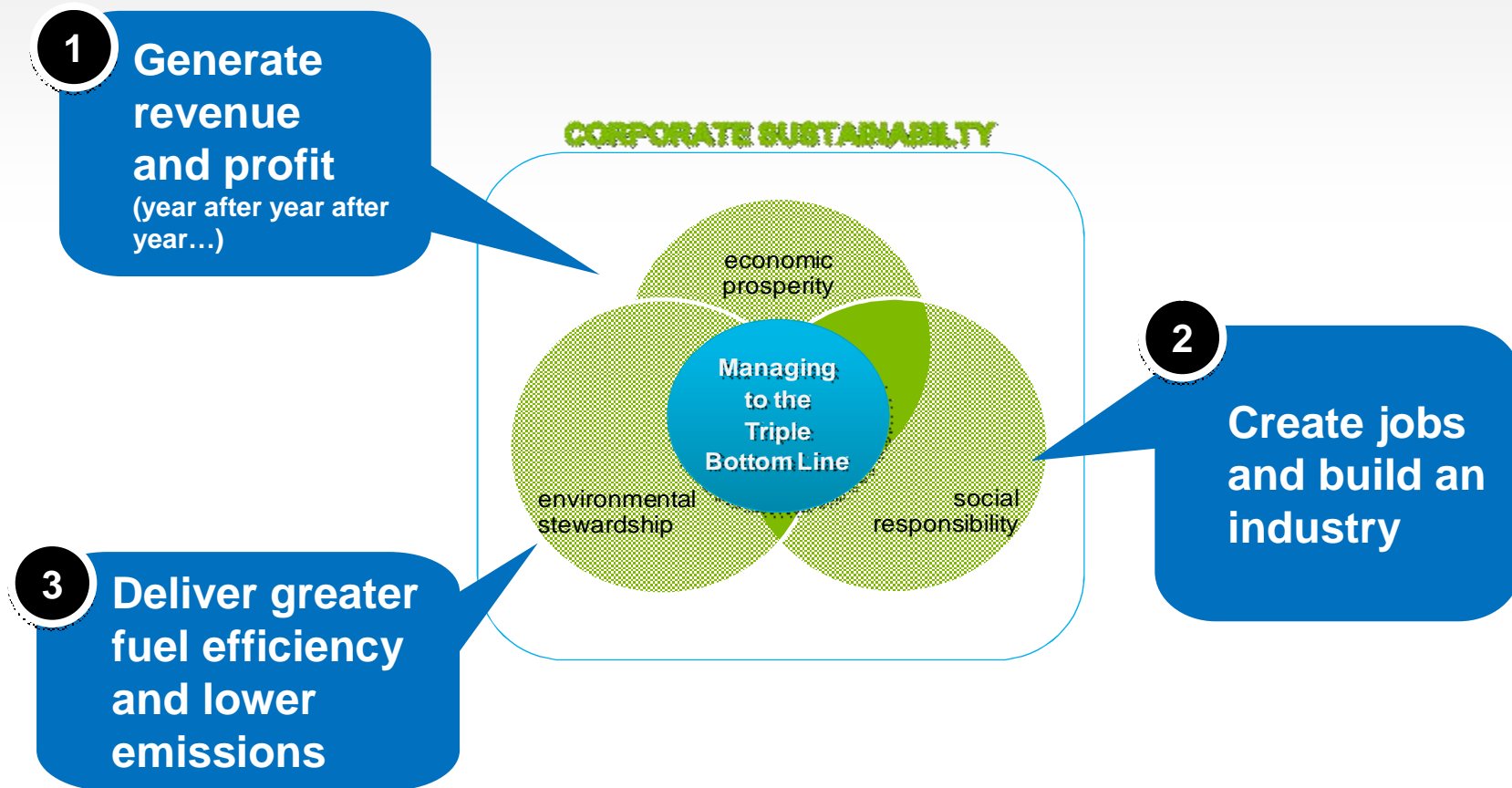
Car



Work



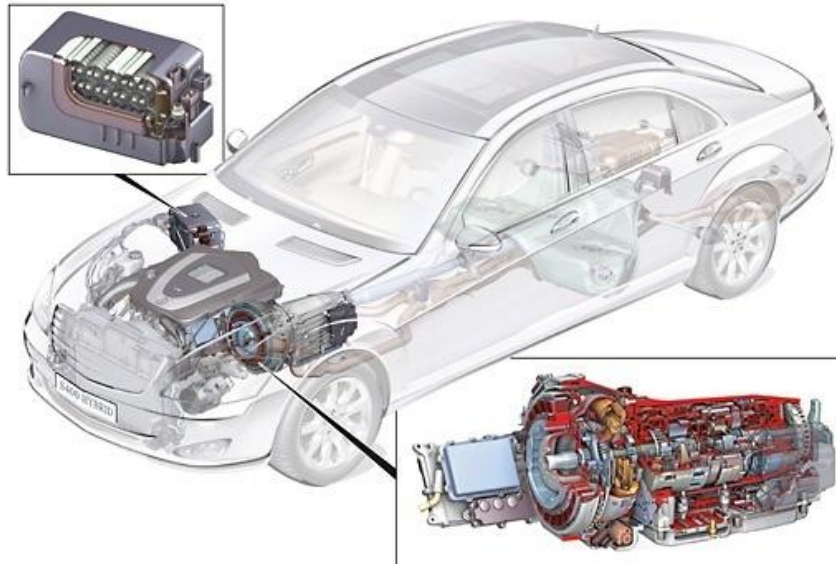
Corporate Sustainability



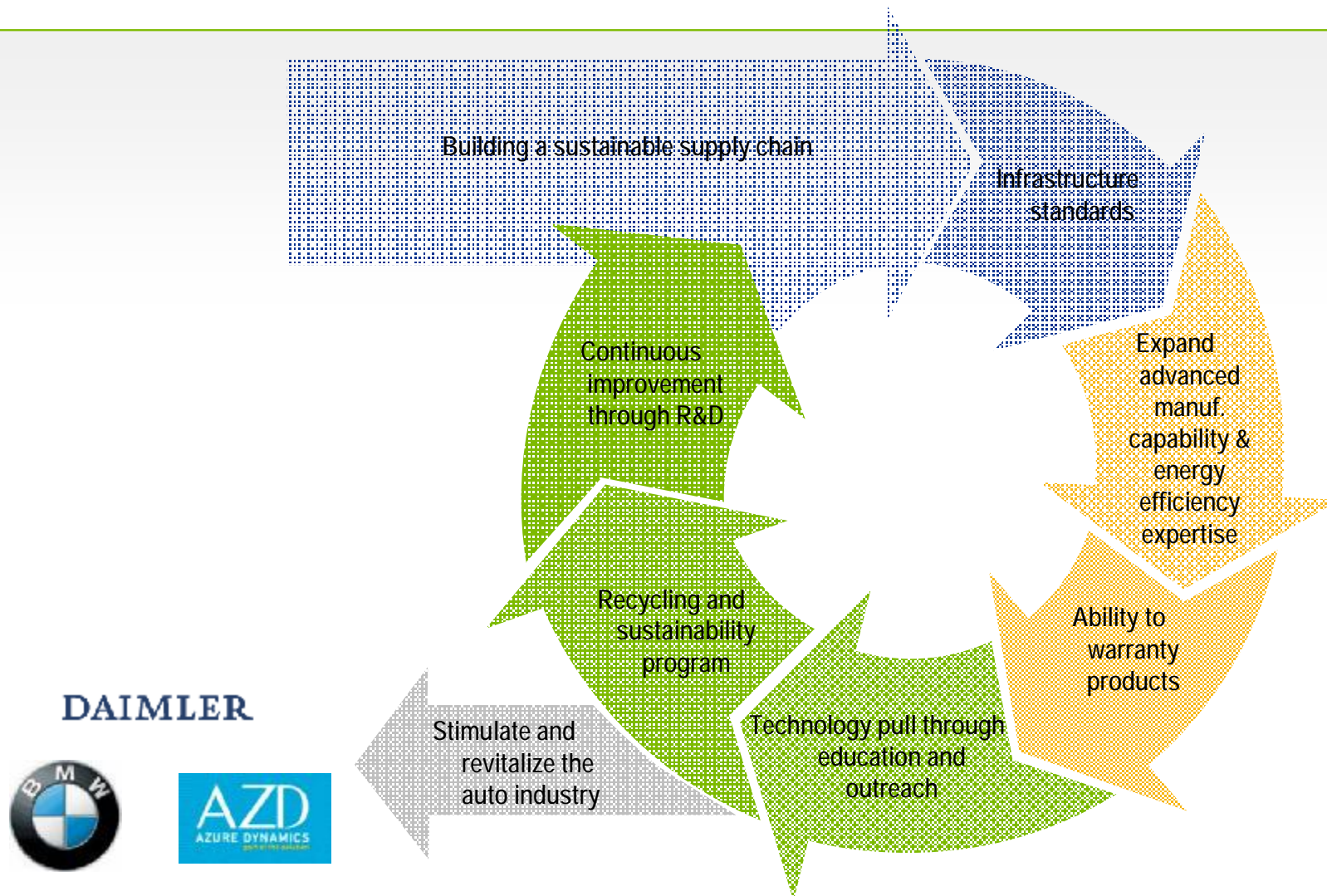
First to Market with Li-Ion Mild Hybrid Application

S400 Hybrid with Johnson Controls-Saft's Li-Ion technology

- § Mild Hybrid Battery System (19 kW boost)
- § Launched in March of 2009
- § Located in Engine Compartment : A/C – cooled

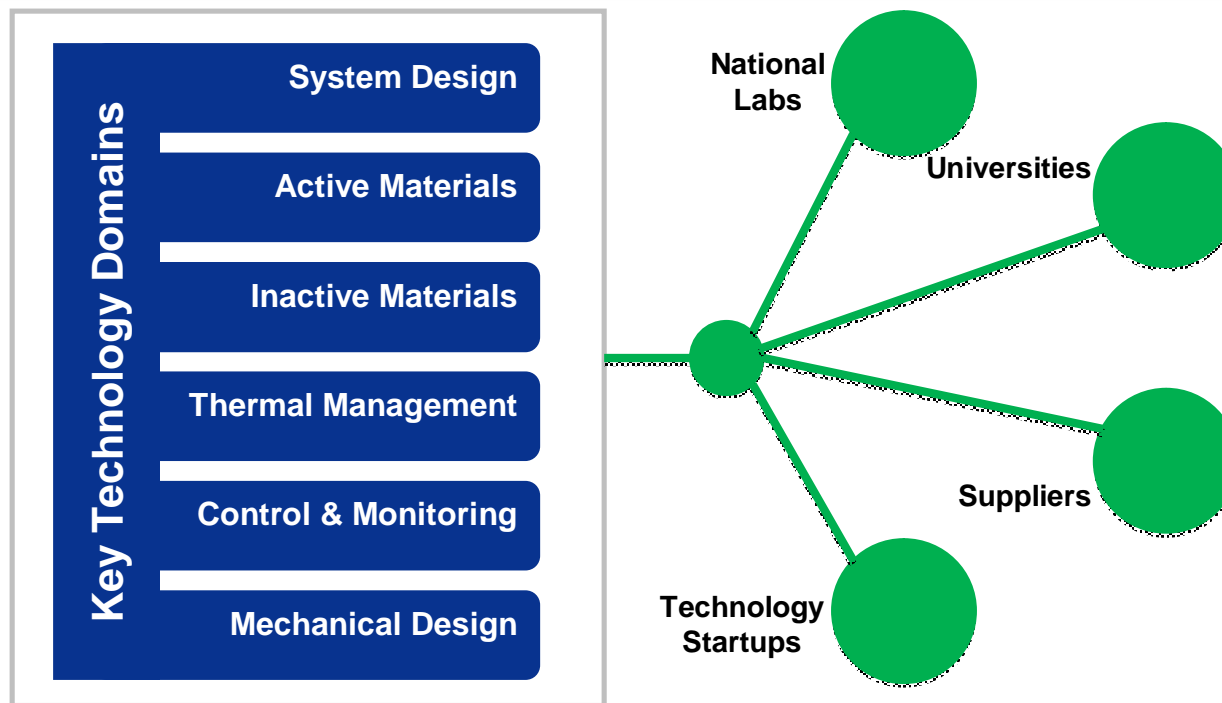


The commercial circle of success

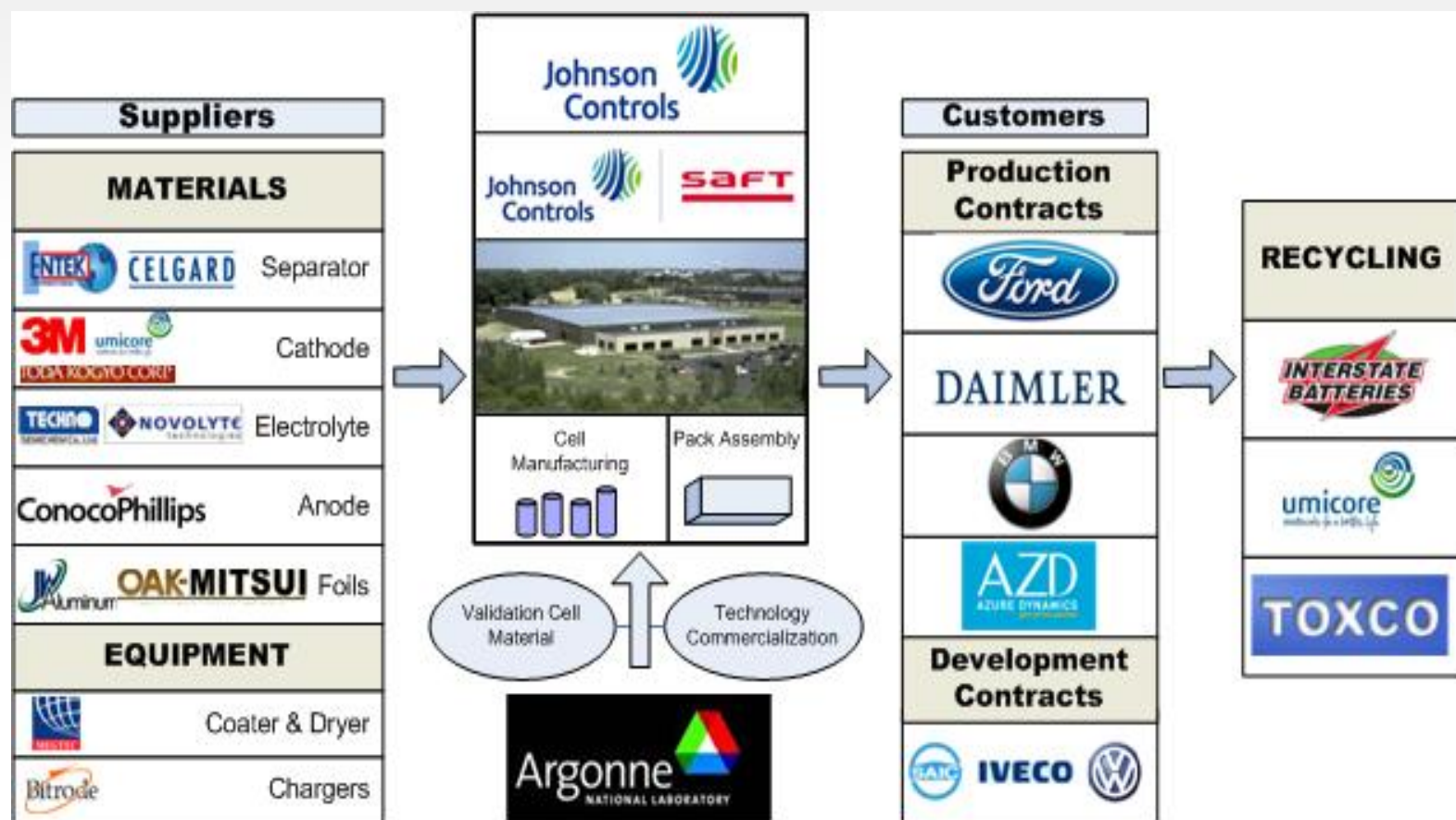


Collaborating with many partners

Research and Advanced Engineering



We assembled a world-class team of suppliers and automotive manufacturers



Most of the key supply base is in foreign countries

Battery pack

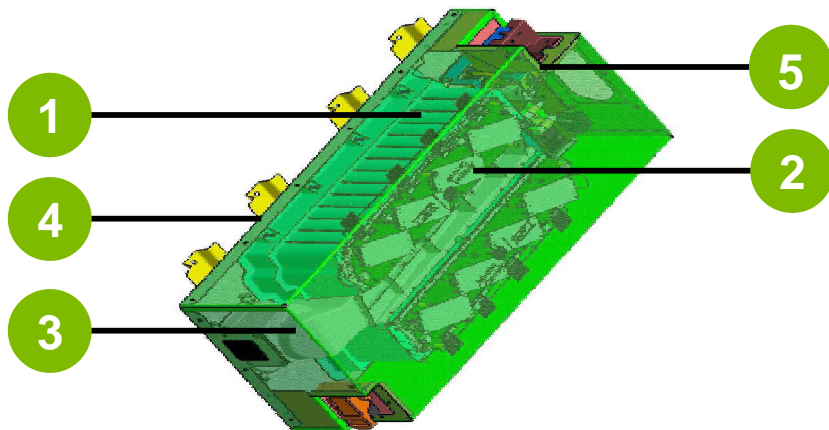
1. Cells



2. Electronics



3. Thermal management



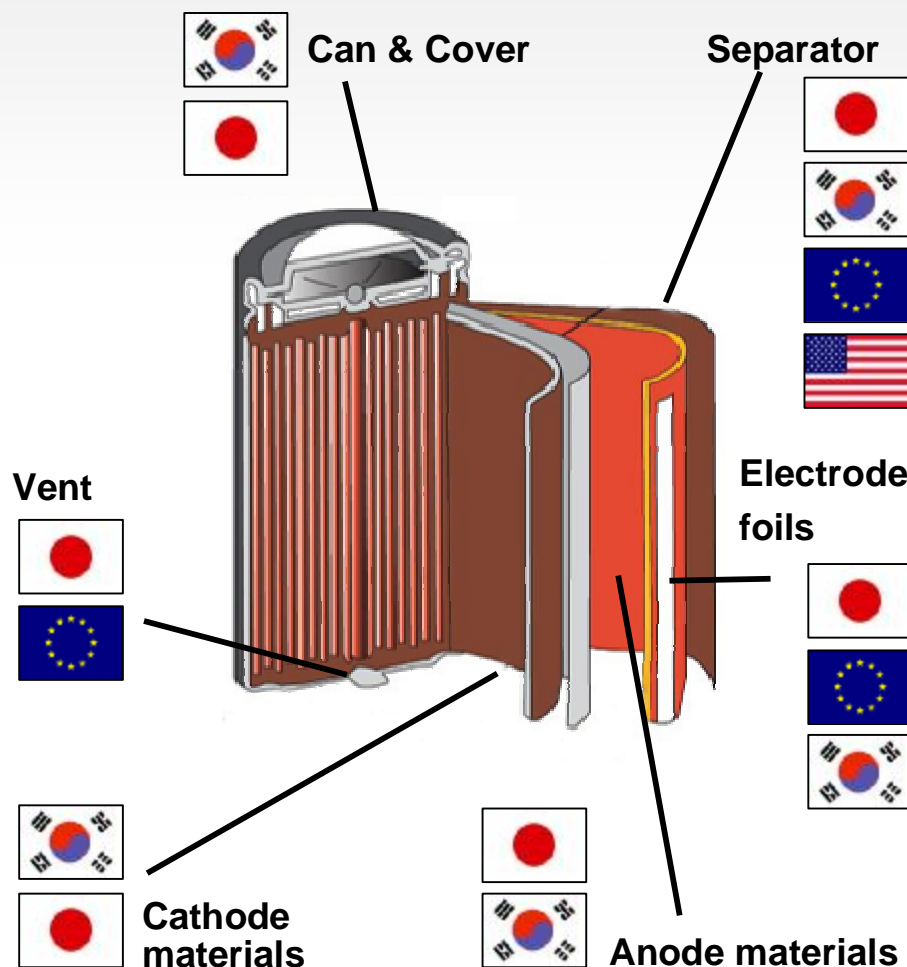
4. Mechanical components



5. Software



Cell



Strategic importance of manufacturing is not a new idea!

“Not only the wealth, but the independence and security of a country, appear to be materially connected with the prosperity of manufacturers.

Every nation ... ought to endeavor to possess within itself all the essentials of a national supply.

These comprise the means of subsistence, habitation, clothing and defense.”

~Alexander Hamilton, ca.1791



PLUG IN
120 V

