Longer service life of concrete structures is more and more required to follow sustainable construction principles. Especially in very aggressive environments, where new concrete compositions and designs are needed; besides, energy infrastructures in many cases, like offshore, need to operate in extreme environmental conditions. The health monitoring of these structures can help to identify through real-time data collection the detection of the appearance of damage, its severity and the diagnosis of structure conditions that will contribute to more accurate service life prediction. The structure health monitoring considers the implementation to smart new technologies and sensors in concrete, as: Fiber optic, fiber bragg grating sensors, piezoelectric sensors, electrochemical sensors, wireless sensing and self-sensing concrete. Through these technologies the monitor of key structural performance parameters is possible: Pressure, strain, humidity, temperature, concrete chemical properties, rebar corrosion risk, self-sensing properties.