A major operator in the North Sea wanted to directionally drill a 16-in. section to 70° inclination. The initial drilling was through a soft gravel formation, where directional control can be a challenge. The base of the section was highly interbedded with hard sandstone and coal stringers, which is notorious for poor tool face control, low rate of penetrations (ROP), excessive vibrations, and high levels of bit damage. In previous wells, the operator had drilled the section with a competitor’s conical diamond element polycrystalline diamond cutter (PDC) bit. The high aggressiveness associated with PDCs led to significant bit damage, high vibrations, poor steerability, and low ROP.

The best bit for the job
Focused on improving drilling efficiency, stability, speed, and bit durability, the drill bit team from Baker Hughes, a GE Company (BHGE), provided a 16-in Kymera™ Mach 4 hybrid drill bit. The split blade design with Stabilit™ cutter technology provided longer bit life with improved durability in a high-impact application and helped minimize damage related to drilling hard formations at high inclinations.

Summary
With overall improvement reducing drilling dysfunctions this operator drilled 40% faster, 14% further, and landed high inclination of 70° in this challenging offshore environment. The Kymera Mach 4 bit ultimately saved $105,000 USD in drilling cost for this well.
Target Inclination = 70°

Competitor Conical Diamond Element
PDC Bit
Actual Inclination=44°

BHGE Kymera XT
Actual Inclination=58°

BHGE Kymera Mach 4
Actual Inclination=70°