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Information Technology: The Underlying Enabler in Visualization, Geosteering, and Collaboration

The recent business environment for petroleum exploration and production has placed intense focus on the need for increased efficiency and accuracy in our critical work processes. SAUDI ARAMCO faces the same dilemma to increase efficiency while simultaneously enhancing quality. Information Technology (IT) plays a vital role in contributing to E&P workflows. Visualization brings multi-disciplinary geoscience and engineering data, interpretation, and experts together to interrogate the issues. Large curve screen, graphics supercomputer, and 3-D stereo graphics enable geoscientists and engineers to be highly immersed and really "digging into" a wide variety of technical data. Multi-lateral horizontal wells have been planned and geosteered in EXPEC Visualization Centers using real-time logging data from satellite and proprietary GeoMorphing technology for maximal reservoir exposure and pin-point accuracy. Efficiency and accuracy improvements were achieved in several fields (Ghawar, Qatif, Shaybah). Experts in different company locations provided their expertise in real time without taking the expense and time to travel. Specialized collaboration technology in sending back and forth the specific view of the data enables experts in each Visualization Center to analyze the same image. Successful collaboration sessions between Dhahran and Udhailiyah contributed timely well production problem solving in Ghawar. A Web-based knowledge management system was established to capture, share, and transfer various asset teams geosteering and collaboration knowledge. Geoscientists and engineers can go to SAUDI ARAMCO Intranet to expose to proprietary and external technologies, learn from other teams' experience, and capitalize on the integrated know-how. Information Technology provides an underlying enabler in SAUDI ARAMCO E&P processes.