

# IT solutions for the oil and gas industry

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## ABSTRACT

When robots (like Shell and Total) are involved in the production process, we can talk about an intelligent well. The use of drones and the use of 3D visualization (as Chevron does) help to identify pipeline faults. Almost all oil and gas companies in the world already use digital technology.

## CCS Concepts

• **Applied computing** → **Enterprise computing** → **Enterprise information systems** → **Enterprise applications**.

## Keywords

Perspective; digitalization; oil production; automation; efficiency; computer technology; energy resources.

## 1. INTRODUCTION

The Message of the Head of the state "Kazakhstan way -2050: common goal, common interests, common future" defines a complex of tasks the solution of which will allow our republic to enter the thirty most developed countries of the world. The oil and gas industry is of key importance to the economy of Kazakhstan.

IT-technologies are processes and methods of processing, granting, distribution, search of the information, and also ways of realization of these methods and processes.

The prospects of IT technology application are great. For example, hundreds of kilometers of pipelines are used for the extraction, transportation and distribution of energy resources, which operate in volatile climatic conditions (see Figure 1).

The use of computer technologies in the oil and gas industry contributes to the efficiency of all production and technological processes that are part of the process at oil and gas enterprises. The main task of computer technologies is to reduce costs for oil and natural gas production. Computer technologies are widely used in such oil and gas industry processes as:

- Oil production.
- Transportation of oil.
- The oil refining process.
- Exploration of deposits.

-Storage of oil.

Application of computer technologies in oil production allows to fully automate its technological and production processes, as well as practically exclude human participation in them.

**Figure 1. Application of computer technologies in oil production.**



## 2. INTELLEAGENT TECHNOLOGIES

The prospects for the oil and gas industry in Kazakhstan are primarily related to scientific and technological development. The oil and gas industry of Kazakhstan is one of the three sectors that have been included in the development priorities, along with the mining and agro-industrial sectors. And this requires new technologies. It should be noted that the state has seriously taken up the problem of technological development of the country. For