Chapter 9

Good IO–Design is More than IO–Rooms

Berit Moltu
Norwegian University of Science and Technology, Norway

ABSTRACT

‘Integrated Operations’ (IO) is about employing real time data and new technology to remove barriers between disciplines, expert groups, geography, and the company. IO has been associated with so called IO rooms. IO is technology driven, but is neither room nor technology deterministic. A network understanding of IO, based on Science and Technology Studies (STS), gives a process of different actors chained in networks, pointing the same directions by the same interests, to obtain the anticipated effect as is comes to efficiency and good HSE results. This chapter develops the seamless web of the IO design and describes good design criteria based on studies in Operational Support Rooms (OPS) in a Norwegian Oil Company. This process of the heterogeneous engineering of IO is not to be seen as technology implementation rather than technology development. This chapter points on how the seamless web of the IO design might contribute to good working conditions.

INTRODUCTION

The oil and gas industry is undergoing a fundamental change in important business processes. The transition is made possible by new and powerful information technology. Traditional work processes and organisational structures are challenged by more efficient and integrated approaches to exploration and production. The new approaches reduce the impact of traditional obstacles – whether they are geographical, organisational or professional – to efficient use of an organisation’s expertise knowledge in decision making (Kaminski, D. 2004; Lauche, Sawaryn & Thorogood, 2006; Ringstad & Andersen, 2007)
Descriptions of the new approaches exist elsewhere (e.g. Upstream technology 2007), and will not be repeated here. The approaches can be subsumed under the heading Integrated Operations (IO). Numerous definitions of IO exist in the industry. In this company (2007) IO is defined as:

*New work processes which use real time data to improve the collaboration between disciplines, organisations, companies and locations to achieve safer, better and faster decisions.*

It is generally assumed that improved decision making processes will in turn lead to increased production, less downtime, fewer irregularities, a reduced number of HSE-related incidents, and a more efficient and streamlined operation in general. In this chapter we study four different IO solutions that create a working environment for decision-making, to look for correlations between IO designs and effectively and production. These are the issues addressed in this chapter.

The fundamental changes in work execution as a result of IO are illustrated in Figure 1 and are briefly described:

The old ‘assembly line’ work mode is seriously challenged by IO. More tasks can be performed in a parallel fashion, thereby reducing total time consumption. From a decision making perspective, parallel work execution means a more iterative and relational process.

Multidisciplinary teamwork becomes more critical as the availability of real time data increases and work is performed in a parallel fashion more or less independently of physical location.

Real time data at different locations make it possible for personnel at these locations to cooperate based on a shared and up-to-date description of the operational situation.

Videoconferencing and ready access to data and software tools reduces the need for specialists to be on location. This increases the availability of expert knowledge for operational units, and reduces the time it takes to muster the experts.

The diverse and fundamental changes associated with IO require good design of IO rooms or operation support (OPS) rooms used for operation and maintenance activities in the offshore oil industry. This chapter is based on an empirical study of four different OPS-rooms or IO-designs (e.g. the fields of A, BA and BB, C and D) in an attempt to catch a best practice of IO design in terms of correlations with efficiency and productivity in the four different assets studied. The chapter shows that the most IO mature design correlates with efficiency. Good design criteria for the process is developed in this chapter. Based on the empirical study of the most IO mature design among the 4,

*Figure 1. Changes in work execution as a result of IO (Andersen & Ringstad (2007), Moltu, Ringstad & Guttormsen (2008))*