

## **Teamwork and Innovation in Geosciences – Who is on the team? Who is keeping score?**

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### **Introduction**

New ideas in geosciences are constantly challenged because we are essentially dealing with models and hypotheses. From a petroleum geologist stand-point there is the tremendous discrepancy between the level of imagination in the industry and the level of innovation. A review of these statements and of their validity should help us find some solutions for the long term. In order to give a framework to gather our thoughts on the matter we focused on the relation between teamwork and innovation.

There are some items of particular importance to innovation: the source and ownership of ideas, constant and constructive interaction with ideas being reviewed, improved or rejected, as well as complementarities of team members including multi-cultural and multidisciplinary teams.

### **Teamwork - the power of sharing**

Sharing a new idea is always difficult as time is needed to refine it thoroughly. Most people are reluctant to share an idea in an early stage because it is an unfinished product. However, you might end up spending time on the wrong idea if you don't share or if you delay sharing that idea. You need to subject your idea to be reviewed as quickly and as often as possible if you want to be successful.

A **peer review** can quickly and effectively polish a rough idea, redirect a partially misguided one or even support effectively a new concept, a new idea. It can thus speed up its adoption.

One of the most powerful and efficient ways to get an idea across is to involve the team members, stake holders and users as often and as quickly as possible. That may mean, for example, bringing the reservoir engineers in the early discussions of a geological model of a complex field with many wells already drilled. Examining the reservoir engineering problems commonly delivers the best geological solutions. It also creates an extraordinary link within the team as everyone feels **ownership** of the final model.

### **Teaming with whom? The confidentiality issue**

Confidentiality has always been blamed for the low level of innovation in geosciences (petroleum industry). Much of the research has been gradually addressed by consultants, service companies and academia as most of the research labs were closing down. In the mid nineties whereas oil companies were clearly looking for partners to do some of their research, they gradually started to speak and work more and more with other oil companies (fig.1). Since the beginning of the 21<sup>st</sup> century, oil companies have gradually reduced the level of communication with the outside world; they speak and work with contractors and sometimes with other oil companies but everything is kept confidential. This results in abysmal participation of oil companies at major conferences in the world and a lack of exposure to new ideas for everybody in the communities.

Another new approach these days is to buy out a company or hire the expert in order to keep being innovative; this practice is more extreme when dealing with technology but is also present in geosciences.

The most confidential items in the oil industry are most commonly related to failures. Post-mortems were once a common practice in our industry; time constraints have seemingly changed these into non-essential items; the main reason is that people and companies don't like to speak about their own failures. The most innovative industries and the most innovative people thrive from analyzing their own failures.

### **Teamwork, networking and scientific community**

Exposure to as many ideas as possible is not always easy to achieve. You share strong ties and common interest with people you know best, people you are commonly with. However, talking to the same people will bring you the same information; you will probably spend your time speaking about things you already know.

People from various cultural or educational back-ground will have different approaches to a problem and different ways to analyze the same data set (Trompenaars et al., 1998). Diversity brings discussion, open-mindedness and more importantly, new ideas. Networking is thus extremely powerful as an innovation tool; the world-wide-web gives you the extreme case of networking in that you can ask a question one minute and get an instantaneous answer from someone from the other side of the world.

### **Constantly questioning what you know**

A constant communication flow is essential to allow innovation, not one new idea but a permanent flow of new ideas. Constant innovation, most commonly referred as Kaizen or as Organic Growth comes with open minds, open offices and a deep respect for everyone's opinion. When you stop asking questions you stop being innovative. The right question can come from anywhere, even a child may ask the best question; no

need for a PhD. Researchers may help answer the questions but the best questions leading to innovation are commonly generated by the naively curious.

### **Teamwork and championing new ideas**

At the beginning of a new idea, only the inventor believes in it; interaction with team mates leads to acceptance in that team and the challenge is to spread the new idea outside that restricted group. A major problem is ownership of the new idea and sometimes the only solution is to move early adopters away from their original team to effectively sell the new idea. Innovation is associated with risks and challenges, as the individual (or the team) has to step out to promote and market the new idea. Communication quality within a team and within a company can be a bottle neck or be a catalyst to the adoption of any new idea. Organizational communication varies a lot from one company to another. Level, style and quality of communication within several oil companies has been studied in detail using the Francis activity method (Francis, 1987); the results reveal that within any company the level and quality of communication, trust and openness can vary greatly between and within teams.

### **Summary thoughts**

Sharing with others even (and especially) an early and unfinished idea leads to incremental innovation. Constantly challenging paradigms leads to radical innovations. Constant improvement of an idea leads to better things. Listening and listening again is the way to get the new ideas. If you think you know better, you are probably not innovator.

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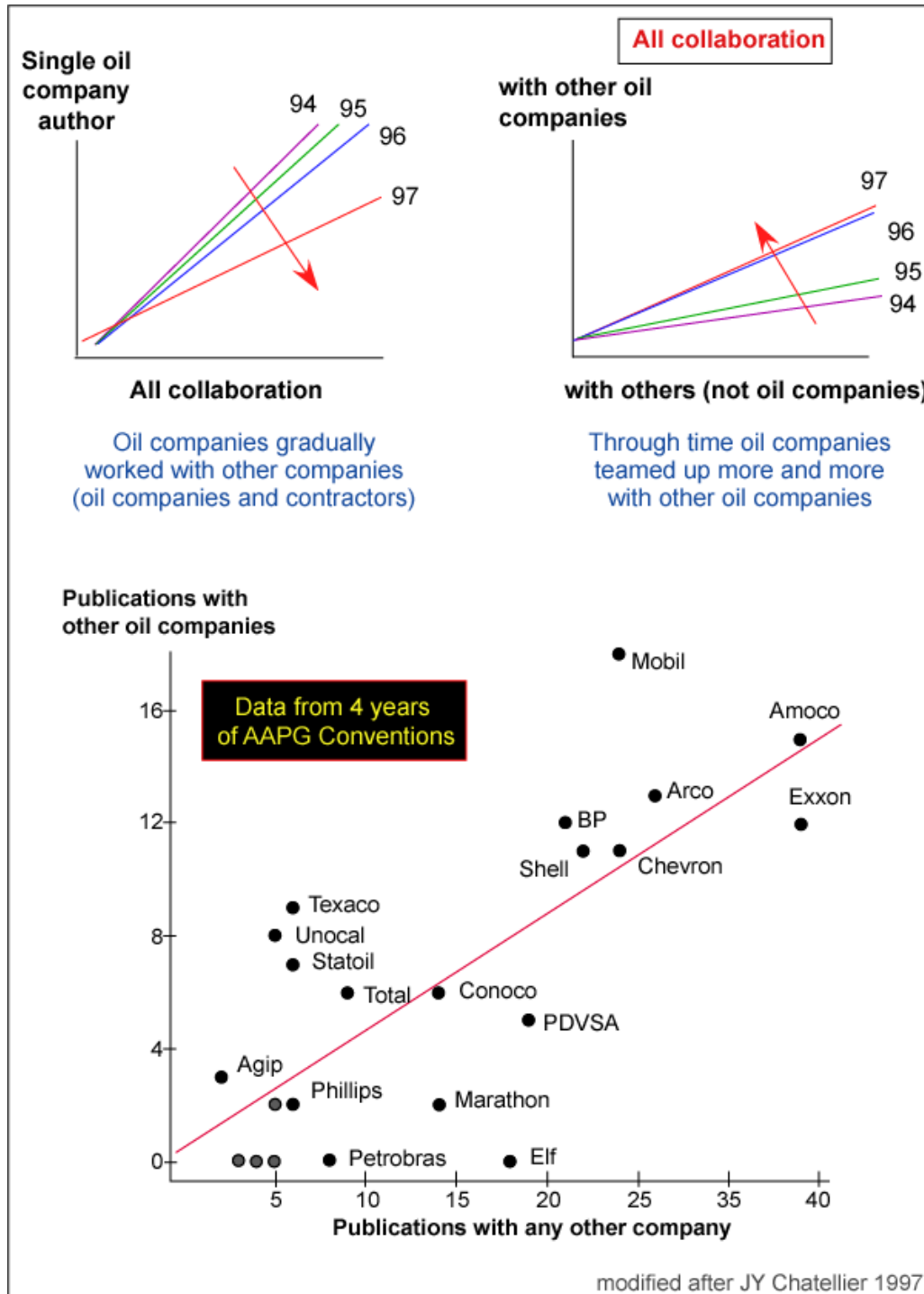


Fig. 1 Oil companies teaming with whom?