Context
The Industry Strategy Meeting will convene Strategy Officers from the Oil & Gas Industry with the objective of addressing the key issues facing the industry. Specifically, the discussion will aim at understanding and defining the major disruptions that are impacting the future of the sector while highlighting critical interfaces with other industries and exploring how to shift from managing change to pioneering change.

The meeting’s conclusions will contribute to define the scope, direction and priorities of the Forum’s Oil & Gas Community and the CEOs sessions at the World Economic Forum Annual Meeting in January 2016 in Davos.

The objective of this document is to present some thoughts that could help guide the discussion in this year’s Strategy Meeting. For that purpose, it will first present a brief recap of the conclusions from last year and the work the community has undertaken around Capital Project Complexity, Human Capital Challenges and Climate Change. Second, it will tackle some of the challenges surfaced by the new price environment while focusing on above ground factors, namely relations with host governments and access to capital.

Recap from last twelve months
The last time the group of strategists met (October 2014), seven issues were identified as the ones most notably shaping the industry agenda: a) Above ground factors; b) Demand Shifts; c) Technology & Innovation; d) Transformation of business models; e) Capital Project Complexity; f) Human Capital Challenges; and g) Environmental Sustainability.

The following paragraphs will present some of the ideas discussed last year and an update on the projects and initiatives of the Oil & Gas Community.

Above Ground Factors
While geology continues to be one of the key determinants of where Oil & Gas are produced, above ground factors gain relevance every day in companies’ investment decisions. Whether those are financial, policy/regulatory-related, stemming from shifting geopolitics or put forward by local communities in which the sector operates, the reality is that the industry cannot move forward if issues above the ground are not resolved.

Demand Shifts
While in the past the emphasis was on peak supply, today a more relevant notion is that of possible peak demand materializing in the medium term. Energy requirements are still increasing globally primarily driven by population and economic growth in developing countries, but lately the rate of increase has slowed down. In addition, in the developed world, energy demand (including oil demand) is by and large either stagnant or decreasing. Key to this discussion are the prospects of technological innovation that could further efficiency gains or potentially transform the energy mix and markets (e.g. vehicle electrification, battery/storage technology, etc.). At the same time, in some parts of the world, change in consumer patterns could increase the pressure to reduce the carbon intensity not only of energy systems, but of economies as a whole.

Technology & Innovation
Technology has emerged as a critical driver of transformation in the industry. Technological innovation has opened the door to new actors and has paved the way to the rise and fall of some paradigms in the industry and the economy (e.g. peak oil). At the same time, technology is expected to play an important role in improving the performance of the sector and maintaining interest from the financial sector as it has the potential to significantly impact efficiency and project delivery.

Transformation of Business Models
Business models and industry players evolve to respond to changes in the environment in which they operate. For example, in some parts of the world, the Oil & Gas Sector is witnessing specialization while in others integration is the name of the game. In the current setting some players are questioning what changes to the business model companies should implement in order to adapt to the new reality.

Capital Project Complexity
As projects have become more complex by pushing the frontiers of exploration and production, the industry has experienced significant cost escalation
and schedule overruns, with non-Drilling & Completion Capex over the next five years expected to approach $1.5 Trillion. Although some of the cost inflation will come off in a low-price environment, a significant portion of industry-wide capex escalation comes from inefficient practices. Based on the findings from last year, the Working Group of Capital Project Complexity (CPC) from the Future of Oil & Gas Project, is exploring ways in which the industry as a whole could significantly reduce this waste, decreasing project costs and improving schedules through pre-competitive collaboration. By moving the industry towards common engineering designs and solutions, the Oil & Gas sector all across the value chain would be able to capture a number of additional benefits, including engineering efficiency, equipment reliability, and increased safety.

**Human Capital Challenges**
The O&G industry faces many challenges related to human capital, ranging from a lack of qualified technical professionals in emerging markets to gaps in the workforce due to the cyclical hiring that correlates with oil price fluctuations (e.g. the current middle management gap). These pain points are not felt evenly across the globe and the acuteness of each has shifted in the current oil price environment. Over the long term horizon, however, the O&G talent pool will likely continue to encounter quantity and quality shortages, resulting from an insufficient inflow of qualified talent and “leakage” from attrition and retirement. Therefore, the Oil & Gas Community working group on human capital has focused on two specific challenges which can be addressed as an industry through pre-competitive collaboration:

1. There is a gap between the skills required to meet today’s (and tomorrow’s) O&G workforce needs and the supply (university education received by entry-level petro-technical professionals, including technical skills, overall management fundamentals and non-engineering skills in areas such as finance, HSE, computer science, etc.). This gap is especially problematic in emerging markets.
2. Low participation of women in the O&G industry originating from gender imbalances in STEM fields at university levels and exacerbated by both industry perception issues and talent retention challenges. The latter is particularly relevant for mid-career female talent.

**Environmental Sustainability**
In the run up to the United Nations Climate Change Conference (COP21) in December, there has been a growing interest by the business sector to make public their intentions and/or efforts in contributing to the climate agenda. Business communities, and in particular the Oil & Gas sector, have a significant role to play in shaping the world’s energy and climate future. The Climate Initiative (OGCI) recognizes that companies’ engagement becomes more powerful and impactful when implemented as a collaborative effort. Moreover, the OGCI has also become a vehicle to gauge the sector’s potential in providing practical solutions to mitigate climate change.

Over the past year, the OGCI has made progress towards realizing its vision of becoming a more recognized and ambitious provider of climate solutions. The initiative is currently at a critical point for the launch of its first report and public CEO event in October 2015, ahead of the COP21 in Paris.

The OGCI aims at:
- a) Build, strengthen, and recognize the positive contribution of participating companies in the context of climate change;
- b) Catalyze meaningful action and improved coordination among participating companies on climate change solutions;
- c) Encourage others in the Oil & Gas industry to engage in collaborative actions on climate change.

**New price environment: relations with host governments and access to finance**
Over the last year, the sector has been impacted by multiple variables that shed new light on many of the issues discussed above. Amongst them, the new price environment is perhaps the most significant.

**Relations with host governments**
Recently, host governments are beginning to question whether the fall in oil prices is a temporary blip, or if a new oil market paradigm has arrived and what is needed to compete for investment to get projects moving again. Some analysts would argue that this could decrease the relevance of above ground factors – notably because of an increased willingness on the part of governments to design investment terms that are more attractive and investor friendly. However, in some cases it is sensible to expect above ground factors to become more salient and pressing. For example, communities expect immediate and lasting national development impacts from Oil & Gas projects. These expectations will be harder to manage if no tangible benefits materialize.

**Access to Finance**
On the financial side, the outlook for investment in the Oil & Gas sector has been transformed by price volatility, the potential for longer-term low prices, the changing financial environment and the prospects of a more stringent climate regime.

The last ten years have seen a reduction in the investors’ appetite for investing in the Oil & Gas
sector. Although the returns remained competitive when compared to alternatives, the data does show a decrease in returns even at times of higher oil prices that could be the result of increasing exploration costs, budget overruns and delays. Projects that are not viable under prices of US$65-75 went ahead, with the expectations of continued growth in demand. Some of these projects can be delayed or cancelled but others cannot. This has the negative effect of crowding out some projects which would have been viable at lower prices and adds to the disillusionment of financial investors (Mitchell et al., 2015).ii

At the same time, the financial sector is changing, or being changed in the aftermath of the financial crisis. Tighter regulation requires banks to hold more capital against loans and reduce risk. Some banks reduced their exposure to the sector and even cut their O&G specialist teams altogether. The result is a financial sector that is less understanding of the sector.

Furthermore, a finance gap is already hitting the early stage exploration and appraisal of companies traditionally funded by equity. Even before the oil price fell they were struggling to attract investment/financing because of below expectation returns (or over optimistic assumptions). Now, new equity is hard to raise. Although these are typically small companies, their existence contributes to the overall health and functioning of the ecosystem. Many exploration and development assets in emerging producer countries, which would have attracted these small companies, will not be funded and will lie fallow.

Small private and listed companies and small NOCs in emerging producer countries are probably most at risk in the lower oil price environment, as they are more likely to have a concentrated portfolio, maybe just one asset, which may not be viable at lower price levels. Many analysts argue that they will have a hard time maintaining afloat if oil prices remain in the US$50 range and will abandon acreage more expensive than that.

The small NOCs from emerging producer countries had benefited from operator payments during exploration, but as much of the activity dries up they will depend increasingly on government funding. They will probably need to downsize and adjust their ambitions in line with available financial resources.

NOCs from established producer countries are also seeing their budgets shrink. NOCs dependent on a budget allocation will face tough times financially, as the pot of oil revenues shrinks. NOCs usually financing capital expenditure from retained earnings will also feel the crunch, as governments require extra dividends to offset the loss of revenues resulting from lower prices. When their national economy is more diversified and the government is less dependent on petroleum export revenues it is easier for NOCs to ringfence their budgets when prices fall. Foreign exchange reserves also provide governments with financial cushions to weather downturns even where the economy is not diversified.

The majors’ ability to self-finance projects has been curtailed. They have implemented cost cutting programs, prioritized investments, and dispose of assets (though there might be a shortage of buyers). For those with stronger balance sheets, there will be opportunities to strengthen their portfolios by buying high quality assets that may position their portfolio better on the cost curve.

Overall, companies, whether national or private, with cash or access to funding will be able to navigate lower project costs, potentially better terms and to extract good assets from badly financed companies. However, if oil prices remain in the current bracket for a long period, the sector may not expand and become smaller, but investors could be rewarded by more focused management undertaking more realistic projects with better returns. The more companies restrict investment to realistic projects, the more likely is a balance between supply and demand (Mitchell et al, 2015).

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ii The issue of capital availability is discussed at length in “Oil and Gas Mismatches: Finance, Investment and Climate Policy”, John V. Mitchell, Valerie Marcel, Beth Mitchell (July 2015), Chatham House