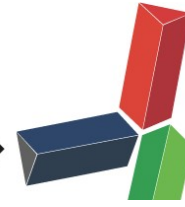




РОСНЕФТЬ



JIF12
JORNADAS DE INGENIERÍA
ENCUENTRO ACADÉMICO

“The Next Step Beyond Limits”

Presentación para la Facultad de Ingeniería
de la Universidad Central de Venezuela

Nebo Kronic

Perforating Manager,
Technical Expert Division, Petrolera RN

Caracas, October 2018.



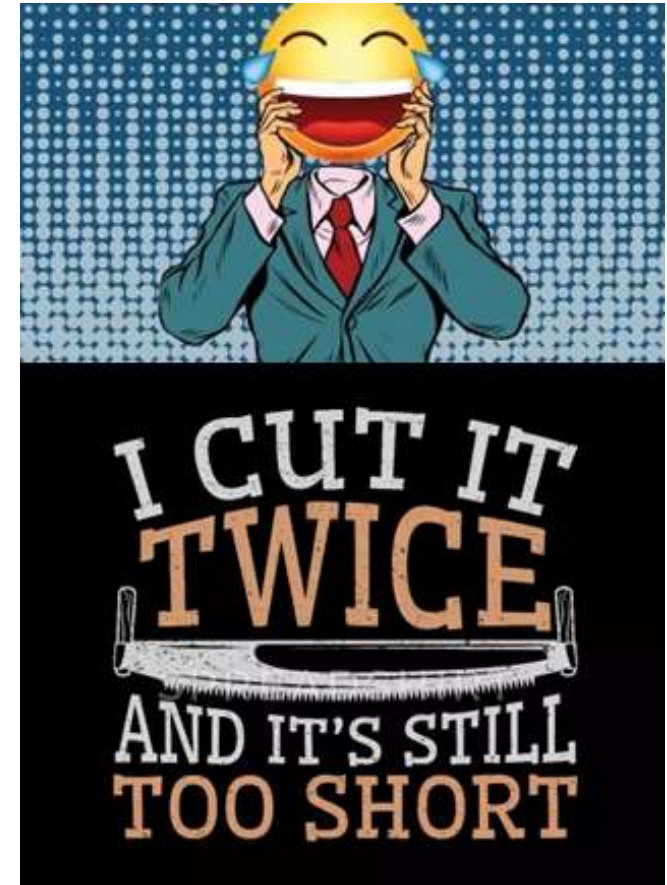
The Next Step Beyond Limits



The Next Step Beyond Limits



- ✓ Don't get discouraged by seeing too many issues around you
- ✓ Strive to see things from different perspective
- ✓ Challenge existing practices
- ✓ Propose new solutions
- ✓ You don't have to change the world, conquer nature, or write the next great masterpiece - just believe in the possibility of your own potential



The Next Step Beyond Limits



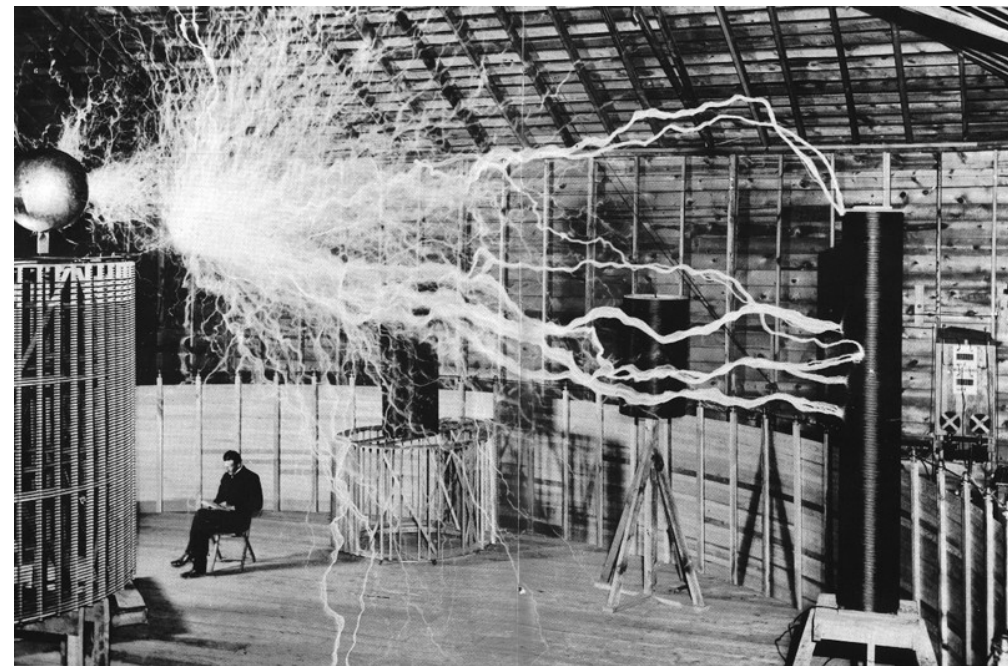
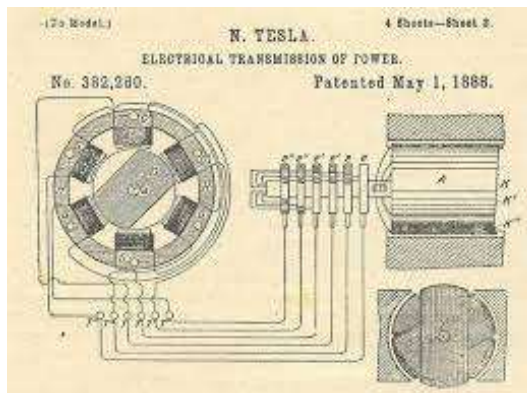
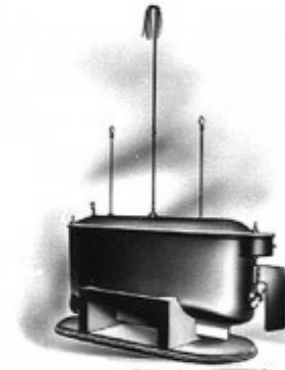
The Next Step Beyond Limits



The Next Step Beyond Limits



The Next Step Beyond Limits



The Next Step Beyond Limits



What's the problem?

What are the possible solutions?

What are the pros and cons of each?



Best Practices for Improving Critical Thinking Skills



- **Waste No Time**
 - *minimize the amount of time you waste thinking and acting on trivial matters*
- **Learning Has No Boundaries - Learn Something New Every Day**
 - *John Glenn was the oldest person to travel into space at the age of 72.*
 - *Distance runner Paul Spangler ran his 14th marathon at 92.*
 - *J.R.R. Tolkien published the first volume of The Lord of the Rings at 62.*
 - *Kenyan midwife Priscilla Sitienei learned to read and write at the age of 90.*
 - *Teiichi Igarashi climbed Mt. Fuji at 99.*
 - *H. G. Wells completed his doctoral dissertation in 1942 at the age of 76 (he was a middle-school dropout)*
- **Develop a Questioning Mind**
 - *Explore possibilities - ask meaningful questions that lead to constructive and useful answers*
- **Practice Active Listening**
 - *Making conscious effort to hear the words being said, and more importantly understanding their message*
- **Don't Rush - Solve Just One Problem**
 - *So many problems and so little time; this is the curse of the modern times and they don't go away on their own. The secret is to take them on one by one, one day at a time, and learn how to avoid them in the future*

The Next Step Beyond Limits



The Next Step Beyond Limits



The Next Step Beyond Limits – Energy

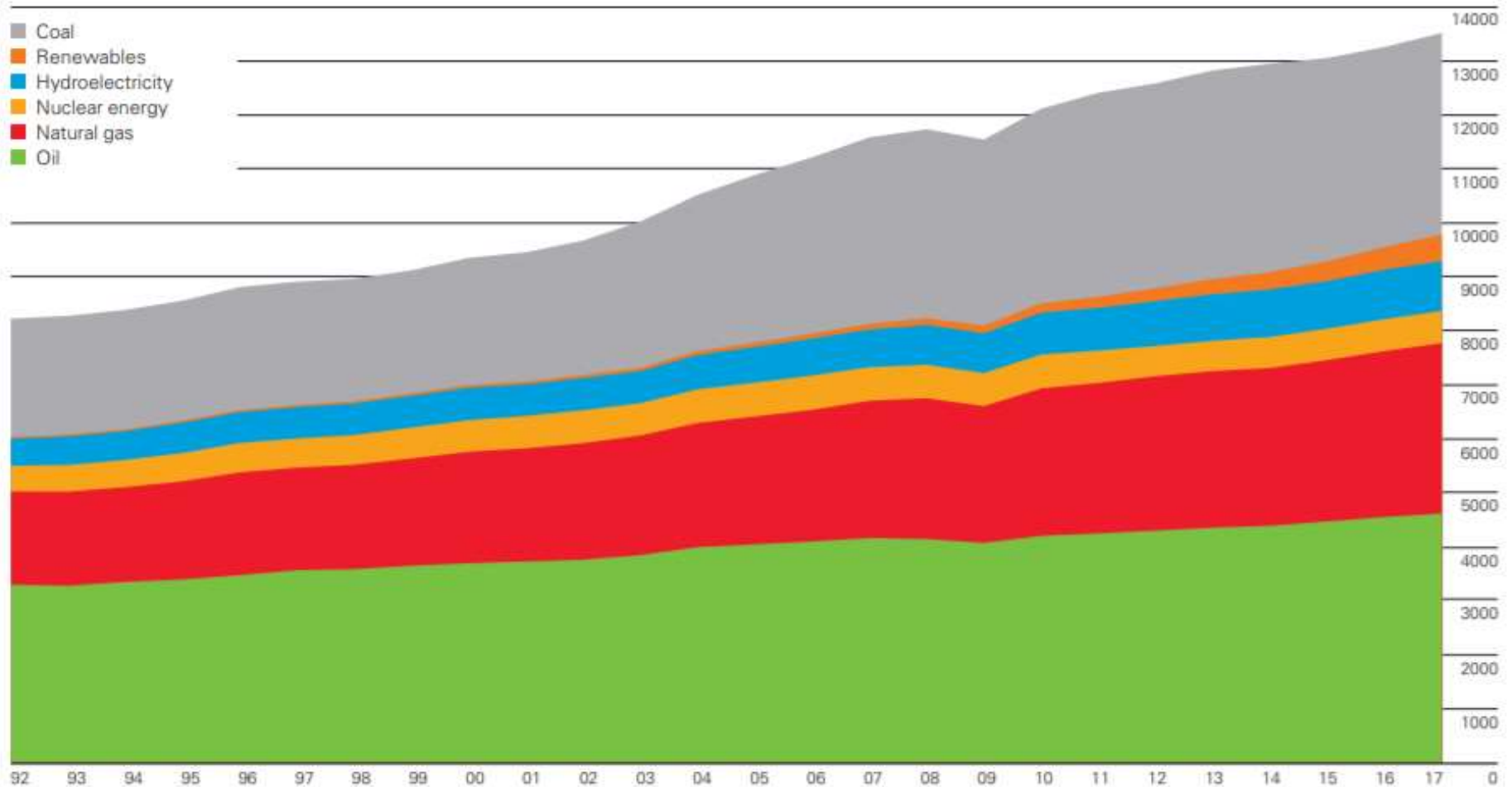


The Next Step Beyond Limits – Energy Consumption



World consumption

Million tonnes oil equivalent



World primary energy consumption grew by 2.2% in 2017, up from 1.2% in 2016 and the highest since 2013. Growth was below average in Asia Pacific, the Middle East and S. & Cent. America but above average in other regions. All fuels except coal and hydroelectricity grew at above-average rates. Natural gas provided the largest increment to energy consumption at 83 million tonnes of oil equivalent (mtoe), followed by renewable power (69 mtoe) and oil (65 mtoe).

The Next Step Beyond Limits – Oil Price Projection



By Jenny Gross

Updated March 6, 2013 12:50 p.m. ET

LONDON--Oil prices could rise to anywhere between \$150 and \$270 a barrel by 2020 as demand growth in emerging markets like India and China out paces expected supply, the OECD said Wednesday.

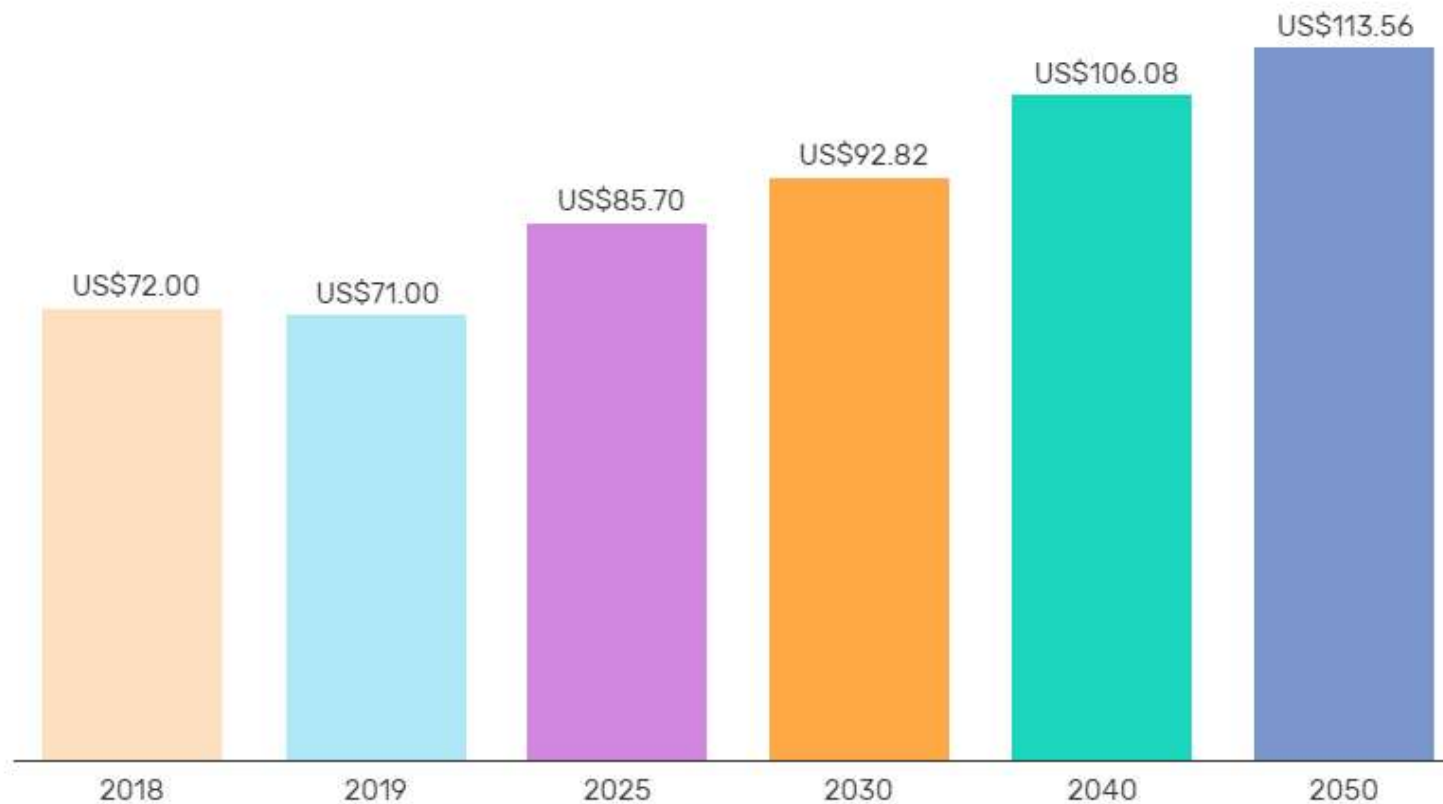


Chart: The Balance • Source: [Annual Energy Outlook 2018](#)

The Next Step Beyond Limits – Oil Reserves vs Production

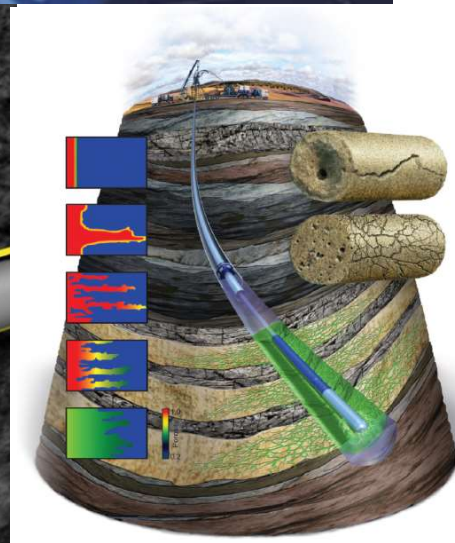
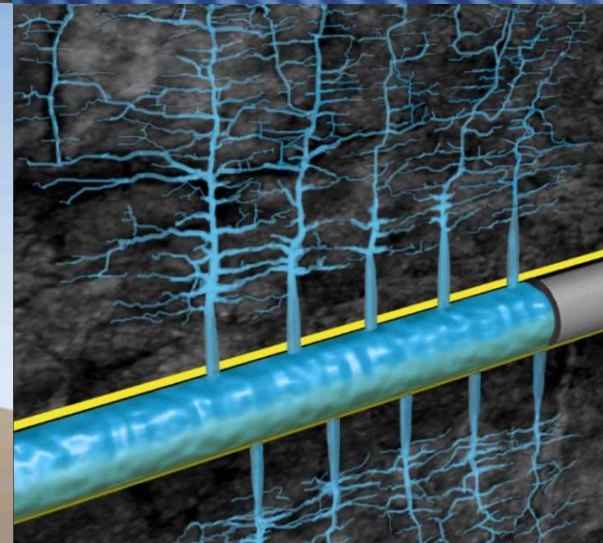
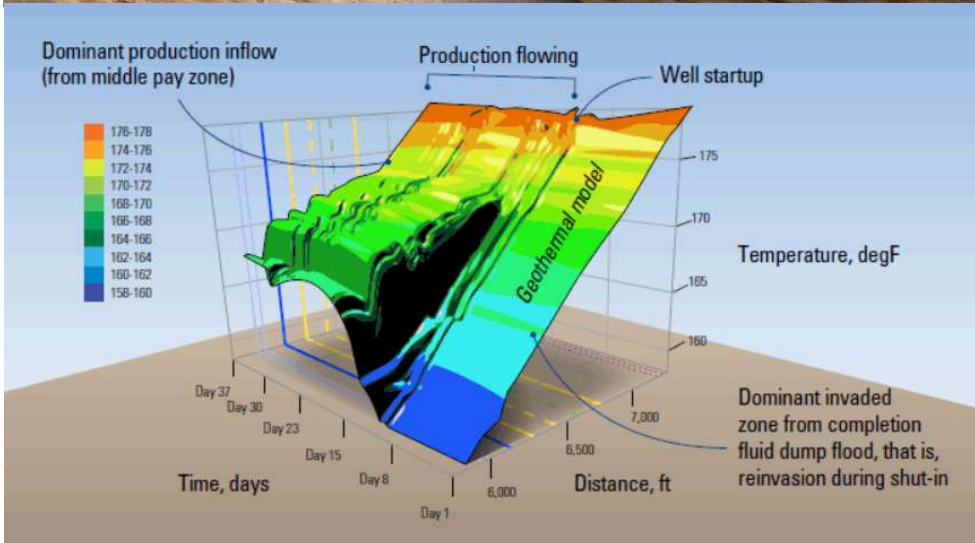
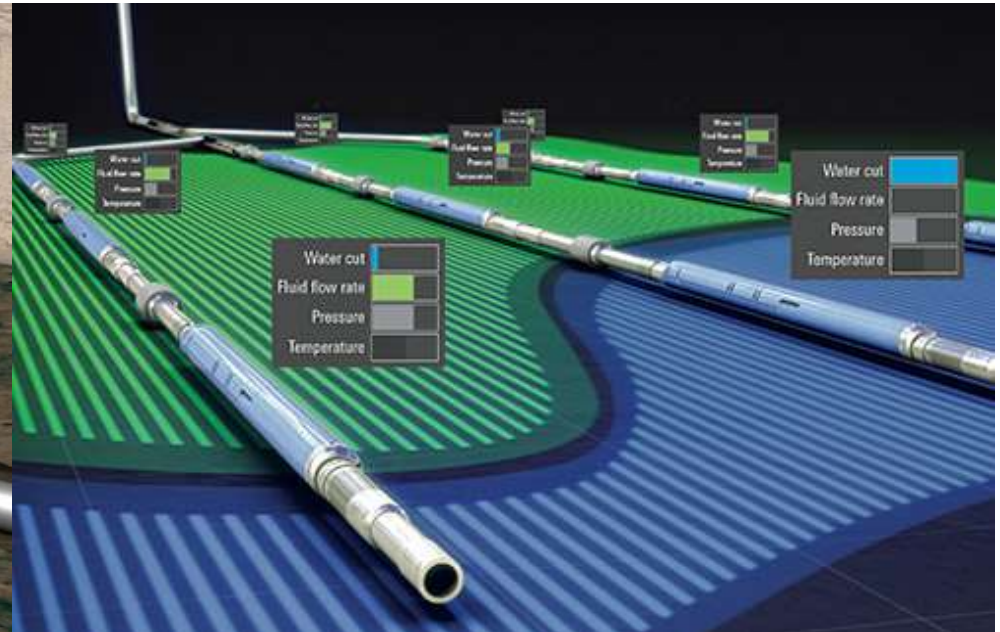


Total proved reserves	at end 1997	at end 2007	at end 2016	at end 2017	Share of total
	Thousand	Thousand	Thousand	Thousand	
	million	million	million	million	
	barrels	barrels	barrels	barrels	
US	30.5	30.5	50.0	50.0	2.9%
Canada	48.8	178.8	170.6	168.9	10.0%
Venezuela	74.9	99.4	301.8	303.2	17.9%
Russian Federation	113.1	106.4	106.2	106.2	6.3%
Saudi Arabia	261.5	264.2	266.2	266.2	15.7%
China	17.0	20.8	25.7	25.7	1.5%
Total World	1162.1	1427.1	1697.1	1696.6	100.0%
Venezuela: Orinoco Belt	-	20.0	223.0	224.0	13.2%

Oil: Production*											
Thousand barrels daily	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Share
											2017
US	6784	7263	7549	7859	8904	10071	11768	12750	12366	13057	14.1%
Canada	3207	3202	3332	3515	3740	4000	4271	4389	4470	4831	5.2%
Venezuela	3228	3038	2842	2755	2704	2680	2692	2631	2387	2110	2.3%
Russian Federation	9969	10157	10383	10538	10660	10809	10860	11009	11269	11257	12.2%
Saudi Arabia	10663	9663	10075	11144	11635	11393	11505	11994	12402	11951	12.9%
China	3814	3805	4077	4074	4155	4216	4246	4309	3999	3846	4.2%
Total World	83067	81284	83325	84027	86229	86570	88721	91547	92023	92649	100.0%

The Next Step Beyond Limits

Technology differentiates our performance...



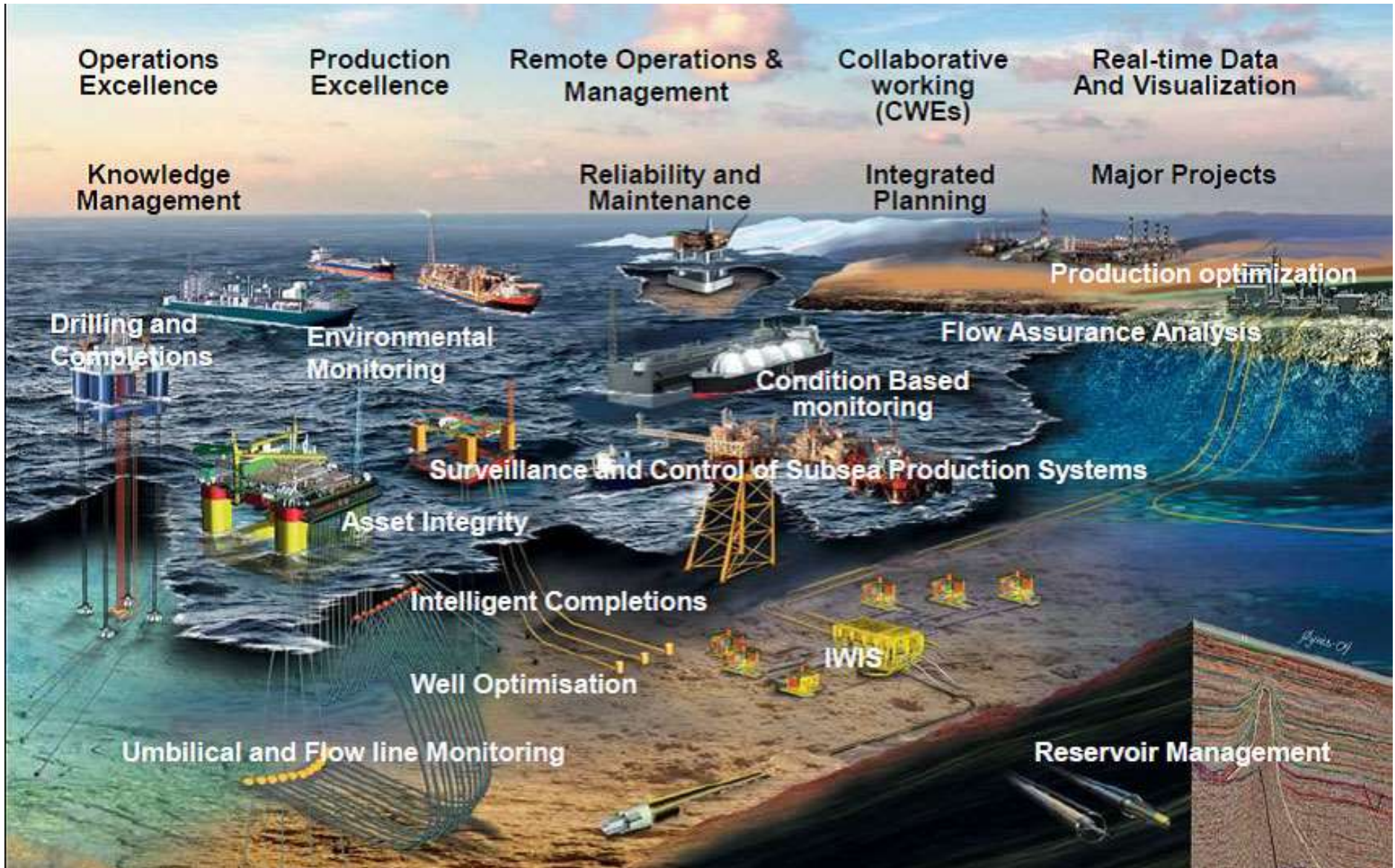
The Next Step Beyond Limits – Oil Consumption & Trade



Oil: Consumption*											
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Share 2017
Thousand barrels daily											
US	19490	18771	19180	18882	18490	18961	19106	19531	19687	19880	20.2%
Canada	2297	2174	2306	2381	2342	2383	2399	2348	2401	2428	2.5%
Venezuela	716	726	725	737	792	782	720	637	539	505	0.5%
Russian Federation	2861	2775	2878	3074	3119	3135	3301	3162	3193	3224	3.3%
Saudi Arabia	2622	2914	3206	3294	3461	3451	3753	3875	3939	3918	4.0%
China	7941	8278	9436	9796	10230	10734	11209	11986	12302	12799	13.0%
Total World	86515	85587	88535	89561	90509	92088	92986	94843	96488	98186	100.0%

Oil trade in 2016 and 2017				
	2016		2017	
	Crude	Crude	Crude	Crude
Million tonnes	Imports	Exports	Imports	Exports
US	392.0	27.6	394.1	45.8
Canada	31.2	163.0	29.7	173.3
S. & Cent. America	24.8	176.2	23.1	168.8
Europe	489.7	18.2	516.0	23.6
Russia	0.2	272.2	0.6	277.2
Saudi Arabia	†	375.5	†	357.5
China	382.6	2.7	422.1	4.7
Total World	2116.2	2116.2	2184.2	2184.2

The Next Step Beyond Limits - TECHNOLOGY





Future is in your hands – just open your mind !





Questions?

Critical Thinking:

What's the problem? What are the possible solutions? What are the pros and cons of each?



- **Don't Take Anything at Face Value**
 - *Evaluate what you hear, what you read, and what you decide to do. Don't do something because it's always done, spend some time just thinking, so it is more likely to make a better, more reasoned choice*
- **Consider Motive**
 - *Where information is coming from is a key part of thinking critically about it. Everyone has a motive and a bias. Sometimes, it's pretty obvious; other times, it's a lot harder to detect*
- **Do Your Research**
 - *If you have a problem to solve, a decision to make, or a perspective to evaluate, start reading about it. The more information you have, the better prepared you'll be to think things through and come up with a reasonable answer*
- **Ask Questions**
 - *Don't be shy... once you go down that rabbit hole, you not only learn more, but often discover whole new ways of thinking about things*
- **Don't Assume You're Right**
 - *If you don't take in other perspectives and points of view, think them over, and compare them to your own, you really aren't doing much thinking at all*
- **Break It Down**
 - *Being able to see the big picture is a great quality, but being able to see that picture for all its components is even better.*
- **Keep It Simple**
 - *Find the simplest explanation that fits all facts... it is most obvious explanation that should be preferred, at least until it's proven wrong*