Which direction of drilling will be the best direction based on previous stresses and present stresses and fractures in the shale gas and oil resources

Abstract
Natural gas is a critical component in the economic development of many countries in the world and is expected to be the fastest growing sector of world energy. Shale-gas production depends on natural and hydraulic fractures to flow it to well.
Well completion practices employ hydraulic fracturing technology to access the natural fracture system and to create new fractures.
Based on previous works, drilling perpendicular to maximum Horizontal stress is the finest direction of drilling in unconventional resources which needs imply of hydraulic fracturing. But this is not a correct understood about fracturing anywhere. I should say that theory is correct about creating hydraulic fractures in isotropic rocks but almost all of the rocks of the resources of the world have heterogeneous properties. Such a situation will rarely be encountered in real rocks that are usually full of heterogeneities (different layers) and weak planes (bedding contacts, cleavages or existing fractures).

Some of these weak planes have a potential of reactivation before the others and before crating hydraulic fractures.
We have two big challenging questions:
1- Which sets of fractures have a potential of reactivation?
2- Which direction of drilling would be the correct direction of drilling for further productivity?
Modeling of the previous stresses and present stresses and fractures in the shale formations with XFEM will help us to answer those questions.