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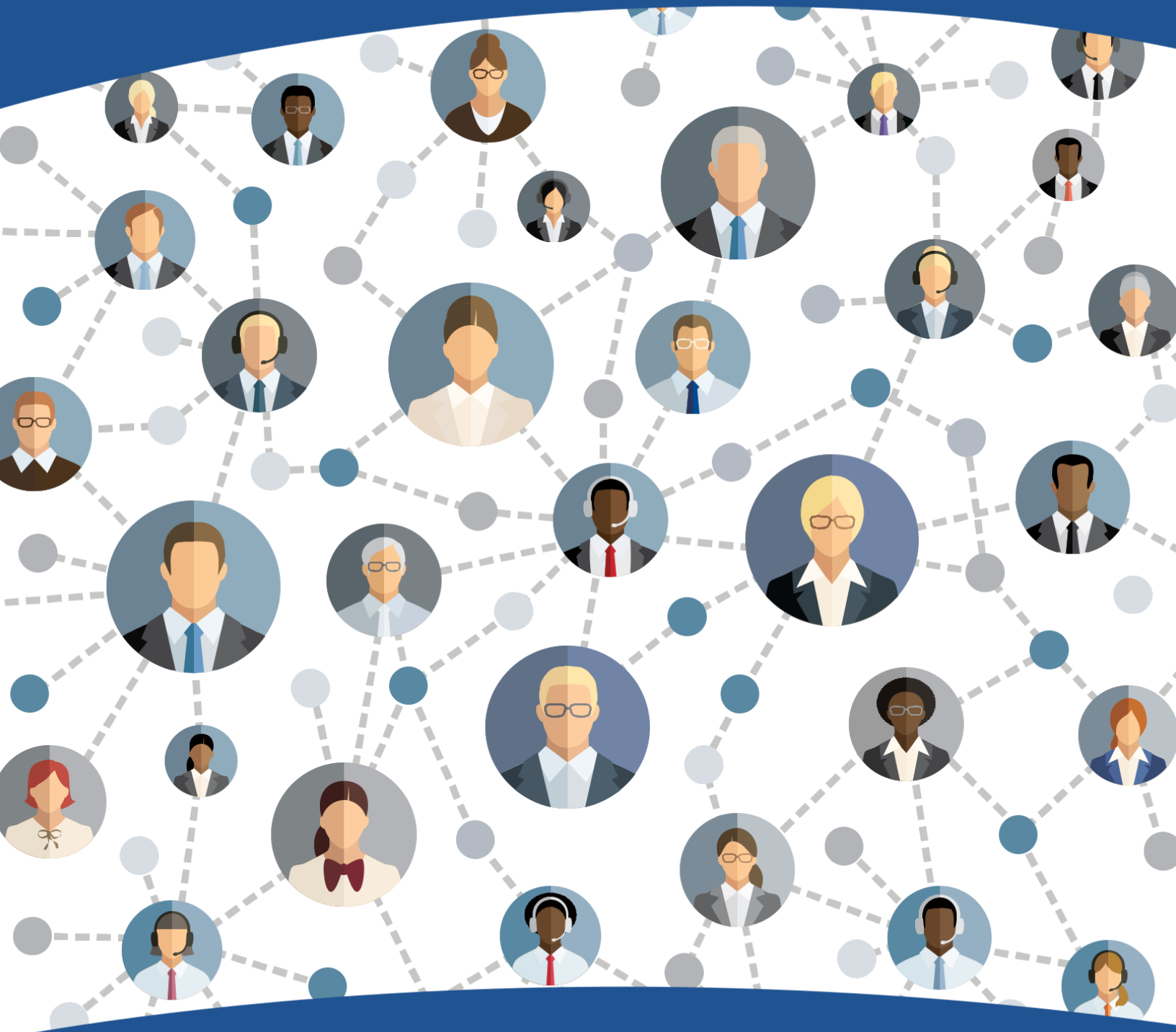

WINNER OF THE AWARD FOR THE BEST TRAINING INSTITUTE IN THE GULF

Seismic Interpretation & Basin Analysis of Rift Basin Systems

INTRODUCTION

- Rifts represent part of an evolutionary sequence of crustal and upper mantle stretching that leads to normal faulting resulting from extension. Rift basins, as a distinct geological category, account for only about 5% of the area of basins of the world, however understanding rift systems helps to unravel a very large portion of the earth's geology. Rift basins also occur throughout the geological record with examples from the Palaeozoic, Mesozoic and the Cenozoic.
- In addition to rift basins being the foundation of much of the geological history of the earth, they are additionally extremely attractive areas for hydrocarbon accumulations. Despite their relatively small geographical distribution they are known to account for 12% of the known oil reserves.
- This Seismic Interpretation & Basin Analysis of Rift Basin Systems training seminar will establish the tectonic setting, the structural style the stratigraphy and the characteristic hydrocarbon production of a typical rift basin. A number of basins have been chosen to illustrate the rift development and they will provide study examples for workshop sessions. These include the classic Gulf of Suez rift representing a Cenozoic rift while the Sirt Basin, Libya represents a Mesozoic rift. Additionally, the Gulf of Thailand will be discussed as representing a mainly non marine (lacustrine) rift section.

This training seminar will feature:

- An Introduction to Rift Basins
- Sedimentary Basin Types
- Tectonic Evolution and the Structural Setting of Rift Basins
- Identification of Rift Phases and the Stratigraphy of Rift Basins
- The Development of Petroleum Systems in Rift Basins
- Case Studies of Rift Basins including the Gulf of Suez, The Sirt Basin and the Gulf of Thailand

OBJECTIVES

By the end of this training seminar, participants will be able:

- To understand the earth processes that form rift basins
- To identify and interpret on seismic the main structural features characteristic of rift basins
- To interpret the main stratigraphical phases characteristic of a rift basin
- To have an understanding of how petroleum systems develop in rift basins and also the geographical distribution of the main hydrocarbon plays
- To develop a good sense of where to go looking for hydrocarbon traps in rift basins

TRAINING METHODOLOGY

- This training seminar will be based around PowerPoint presentations for each module followed by interactive and participative individual and team exercises. There will also be workshop sessions based around real exploration and development case studies to get participants to actively become aware of the seismic and geological characteristics of typical rift basins. This will include a session of how to go looking for oil in a rift basin. seminar participants are also encouraged to bring along stratigraphic data, logs and seismic where appropriate from their own companies so that real working examples can be reviewed and interpreted.

ORGANISATIONAL IMPACT

An expert understanding of the typical characteristics of rift basin systems, where reservoirs are typically developed, the main hydrocarbon trap styles and the characteristic development of source rocks aids in optimizing exploration efforts for a company and obtaining the most from seismic and well data that has already been acquired at huge expense. For the organisation, the benefits will include:

- Getting the most out of expensively acquired seismic and well data
- Prediction of play trends for new acreage acquisition
- More accurate assessments of geological risk for prospects
- Identification of new plays and new leads and prospects
- Development of staff with new oil finding skills that can be applied to ongoing exploration projects immediately
- More accurate estimations of Expected Monetary Value (EMV) for prospect economic assessments

PERSONAL IMPACT

Developing key interpretation skills in exploration assessments provide a real personal benefit. The individual will enhance his predictive skills to become the proven oil finder that organisations are looking for. Personal impact includes:

- Identification of key structural and stratigraphic geometries in rift basins and how to identify them on seismic
- Understand the main hydrocarbon trap types that are developed in rift basins and where to find them
- Develop skills in assessing the presence and effectiveness of hydrocarbon source rocks and their connectivity to reservoirs
- Ability to predict the presence and distribution of clastic reservoirs and to identify new plays, leads and prospects
- Have improved skills in geological risk assessments for leads and prospects in rift basins
- Have improved oil finding skills and then to develop better company and professional recognition

WHO SHOULD ATTEND?

- This training seminar is suitable for exploration and development geologists, seismic interpreters, sedimentologists, petrographers and other upstream subsurface professionals who are interested in optimally utilizing seismic and geological data in the interpretation of rift basins and for identifying the main hydrocarbon plays.

Course Outline

An Introduction to Rift Basins

- Outline and Overview
- Earth Processes that Lead to the Formation of a Rift Basin
- A Modern Day Rift Development – East Africa
- Typical Features of a Rift Basin
- Multiple Rifting Phases and Superposition
- Outcrop Geology and the Study of Rift Basins

Tectonic Evolution and the Structural Setting of Rift Basins

- Crustal Stretching Models, Extension and the Development of Rift Basins
- Identifying the Main Features of Rift Basins on Seismic
- Fault Styles in Rift Basins and the Main Hydrocarbon Trap Types
- Footwall Uplift and Associated Processes
- Hanging Wall Processes
- Transtensional Overprint and more Complex Basin Development

Identification of Rift Phases and the Stratigraphy of Rift Basins

- Pre-rift, Syn-rift and Post Rift Development and Identification
- Controls on Rift Basin Stratigraphy
- Sequence Stratigraphy and Seismic Sequence Stratigraphy in Rift Basins
- Using Integrated Well Log Data to Identify Different Rift Phases
- Seismic Facies and Sedimentary Systems in Rift Basins
- The Use of Applied Biostratigraphy in Rift Systems for Age Dating, Correlations and Palaeoenvironmental Interpretation

The Development of Petroleum Systems in Rift Basins

- Hydrocarbon Source Rock Development and Distribution in Rift Basins
- Migration of Hydrocarbons in Rift Basins
- Reservoir Presence and Development in Rift Basins
- Structural, Stratigraphic and Combination Traps where to go looking for oil in Rift Basins
- The Use of Seismic attributes to explore in Rift Basins and the pitfalls
- Seal Presence and Hydrocarbon Seal Integrity

Case Studies of Rift Basins

- The Distribution of Rift Basins in the World
- The Different Types of Rift Basins Marine - Lacustrine and Aulacogens
- The Gulf of Suez - Egypt
- The Sedimentary Basins of Libya Ages and Styles
- The Sirt Basin - Central Libya
- The Gulf of Thailand - A Lacustrine Rift Basin

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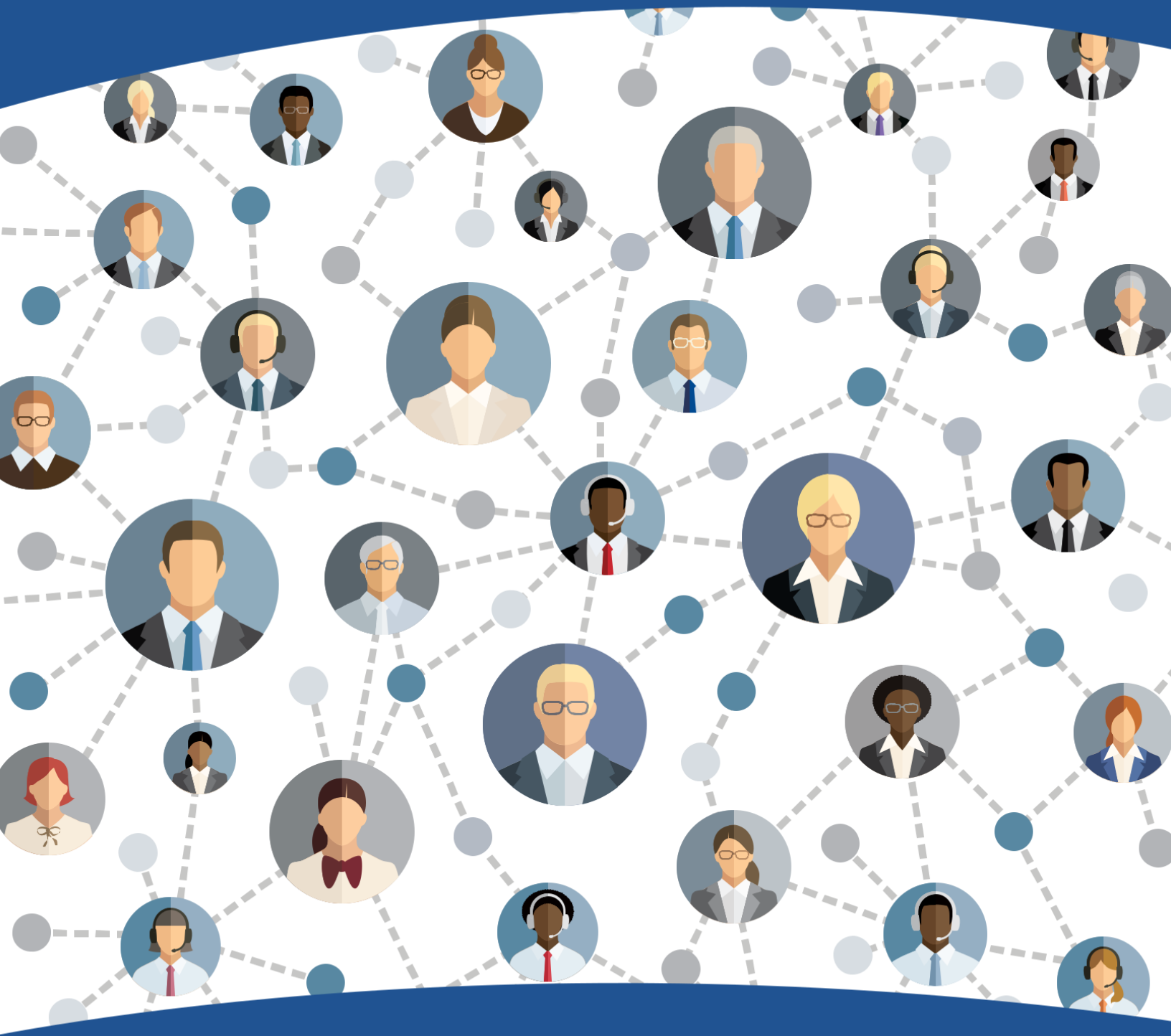

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