Visualization & Real Time Successful Deployment

How to get there from here…

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Landmark is Delivering Results...

...Not Just Technology
E&P Business Drivers

- **Productivity Issues**
  - Fewer people
  - Less time
  - More and more data

- **More and more data**
  - There is over 4.0 million sq. km. of 3D seismic
  - More projects, more results, more data

- **Demographics**
  - Over \( \frac{1}{2} \) of the G&G work force will retire in the next 5-10 years (graying population)
Visualization & Real Time Deployment
What’s It All About Anyway?

- **The Challenge** – designing and delivering a facility to provide maximum functionality that is easy to use and delivers high utilization rates that result in significant, timely improved results
  - This is **not** about buying hardware and software
  - This is **not** a series of purchasing transactions – it is a major project and should be managed accordingly
  - We must focus on the people and their workflow changes

- **The Success** – is determined by how effectively we transfer knowledge and implement process improvements across the organization, not how fast and cheap we obtain the technology or build the facility

- **There must be a strategy** – tied to business goals that avoid dropping islands of technology on the workforce and expecting them to provide the energy around changing their jobs and their lives
More than just BIG Screens

- Users – Geologist, geophysicist, engineer, driller
- Computers – SGI, Sun, IBM, HP, Dell, ???
- Network – copper, fiber, wireless, LAN, WAN, VAN
- Data – 2D, 3D, 4D, Prestack, Poststack, well, production, reservoir, statistical data
- Projectors – front or rear, mirrors or not
- Screens – flat, curved, cylindrical, spherical
- Output – projects, prospects, and more work…!

VERY COMPLEX TECHNICAL CONSIDERATIONS
Decision Center Design, Development and Implementation Services

- Five Phase Approach – flexible & clearly defined
  - Needs Assessment – scope definition, functional requirements, resource limitations (people, time, $$)
  - Baseline Plans – high level, sponsor review & sign-off
  - Detailed Plans – drawing level specs from user input
  - Construction, Integration and Implementation – total project management to ensure success of design
  - Decision Center Operations – onsite technology experts to maximize knowledge transfer and utilization

- Turnkey, single point of contact is best approach

- Focus must be on the “Human Factors” for new, successful results
Human Factors - The Silent Giant

- **We do not like change**
  - Change causes stress, delays and hinders results
- **We prefer to work alone (scientists)**
  - Team dynamics can create friction & limit learning opportunities
  - Team members work in different ways (A and B personalities)
  - Challenge is to rapidly get the best practices in use by the full team
- **We do not like to look foolish**
  - In front of team members
  - In front of management
- **We use technology by being self taught**
  - We only use about 20-30% within our comfort zone
  - We must have structured learning to get the other 70-80%

An expert facilitator can address all these issues by being an independent consultant, trainer and mentor and help with the learning and adoption of new workflow processes.
The Simple Truth about Results

- You cannot achieve different and/or better results by continuing to work the same old way…

  • You must change either the inputs or the process to yield different results

  • The inputs include people and technology that do not change easily or quickly

  • Process is the one input that can be changed easily and quickly with a defined approach and project methodology that focuses on potential productivity gains from NPT
Decision Centers

- **Visualization/Collaboration – our view of the spectrum**
  - Level I
    - Individual visualization
  - Level II
    - Purpose-built collaboration team rooms
  - Level III
    - Immersive visualization and presentation facility

- **Real-Time Operations Center (Level IV)**
  - Real-time operations and monitoring facility; many data feeds and live video capable
  - Secure environment must be achieved
  - High speed communications are critical
Decision Centers – the Spectrum
Burlington Resources – Houston Collaboration Team Room
PETRONAS – Kuala Lumpur
Group Settings
Reliance Industries - Mumbai Immersive Center
Shell – New Orleans
Real Time Operations
About 2000 sq.ft. or 200 sq. meters

Real Time Drilling Center

Executive Decision Center

Real Time Production Center

Raised Floor

Level 12'

Second 6 inch Step

16'

First 6 inch Step

16'

Visualization Area

Consol e

Viewing Area

Passive Stereo Screen

60” Plasma Screen

Cross Sectional view of Elevation

Console Seating

VIP Seating

Screen
Functionality & Utilization Across the Organization
Design the facility to fit the functional requirements of the users
- Not too much, not too little - based on needs assessment
- Just like building a house
  ✓ Don’t start until you know how your needs, and don’t let the electrician do the plumbing

Integration of many complex systems
- Not just about buying hardware and software
- This is a PROJECT – not a series of technology transactions
- Success is not determined when we “hand over the keys”
  ✓ Success is delivered 6, 12, 18 months or more later when productivity gains are achieved
Process change management
- Workflow improvements must be identified, documented and replicated
- Focus on team collaboration and knowledge transfer
- Human factors must be addressed and managed to achieve true repeatable benefits
  ✓ Don’t get caught by the Silent Giant

More reserves, faster and cheaper
- Structured data management for easy access at the right time and the right place
- Find better prospects and plan more accurate wells
  ✓ Drilling the right well the right way
- Reserves replacement exceeds production
  ✓ Constantly growing the assets
- Productivity gains that keep lowering per barrel costs
Just Imagine

- Best of breed technologies
- Multi-functional facilities
- Easy to access and use
- Delivering significant, timely results

Now imagine that your competition already has it…
Get Ahead of the Competition

- View all of your data – as a team
- Maximize productivity – cut cycle times
- Plan more accurate wells – as a team
- Don’t miss things that traditional workflows cannot find - work ‘in’ your data, not ‘on’ your data
- FIND, PRODUCE AND MANAGE MORE RESERVES FASTER AND CHEAPER
Summary - Why Landmark?

- Landmark is one stop provider for:
  
  - **Software**
    - Volume interpretation and visualization industry leader
    - Drilling and production monitoring is best of breed
  
  - **Hardware**
    - The right systems for the specific needs
    - Our partners are industry leaders & key to successful integration
  
  - **Services**
    - Assessment, design and project management
    - Construction and integration management
    - Operations support – how to best operate the facility
    - Application support – how to best use the software
  
  - **Process/workflow improvements**
    - Focused on the human factors for individuals & teams
    - Changing the process is the focal point for improved results
Thank You

Landmark
The global leader and innovator in E&P data management