More and More Companies Anticipate ....
Why are companies anticipating what the client wants?

CLIENTS HAVE GROWN TO EXPECT ANTICIPATION

DIGITAL IMMIGRANT
DIGITAL NATIVES
DIGITAL DEPENDENT

the art of anticipation

patience ↔ observation

awareness
Adaptive Management 6-Step Process Cycle

- Assess Problem
- Design
- Implement
- Monitor
- Evaluate
- Adjust

Old Way
New Way - Anticipate

Anticipation
Knowing what to EXPECT

Monitoring
Knowing what to LOOK FOR

Response
Knowing what to DO

Learning
Knowing what has HAPPENED
How do we define and measure training quality?

1. **Reaction**: Individuals’ reactions to the learning experiences
2. **Learning**: Individuals’ acquisition of important information, knowledge, skills, and attitudes
3. **Transfer**: Changes in behavior in an authentic setting due to the training program
4. **Results**: The effect/impact that the newly acquired behaviors have on the people and the organization

http://www.kirkpatrickpartners.com/OurPhilosophy/TheKirkpatrickModel
Relating Training Quality to Data Sources

- SMS
- LMS
- Client Surveys
- FOQA
- SOQA

Diagram showing the relationship between different data sources and training quality.
SMS Risk Control Process & Information Flow

START
- FDM, SMS, VSR, I/E Audits
- Latent Unsafe Conditions
- Collect Data

Approve Strategies
- Develop Strategies
- Prioritize Unsafe Conditions
- Collect Data

Assign Responsibilities
- Implement Strategies
- Re-Evaluate Situation
- Analyze Data

Collect Additional Data

Needs Analysis
- Is training the answer? Yes
- Use a different performance initiative

ISD Model
- Analysis
- Design
- Develop
- Implement

ID Model
- Build instructional content and context

Performance
- Reflecting
- Interacting
- Doing
- Absorbing

Learning Environment
- Wisdom
- Depth & Insight
- Skills
- Knowledge
Integrated Learning Environment
Case Study .... What’s next?

Operational Data
Safety Data
BIG Data – or – Safety Intelligence System?

Knowledge & Skills → Training System

Voluntary Safety Reports → FOQA, SOQA

SMS → LMS, TMS

Knowledge & Skills → 4P Heat Map

4P Heat Map → Safety Intelligence System
What is SOQA?

Training/New Behaviors

Full Flight Simulator

Latent Unsafe Indicators

Data Capture Station

Visualization Tools

Data Reports

SOQA
SOQA video example
SOQA Study

▶ Executive Summary

- “... to evaluate the application of Flight Operations Quality Assurance (FOQA) principles to flight training through Full Flight Simulators (FFS).”

▶ Project Purpose

- “... demonstrate the technical feasibility and mishap reduction potential of SOQA (Simulator Operations Quality Assurance).”
Study Conclusions

• “… successful in demonstrating the ability to apply Flight Operations Quality Assurance (FOQA) concepts to the simulator environment.”

• “… The ability to automatically detect SOPs and objectively rate pilot performance against a desired standard is considered a major innovation.”

• “… objectivity of a software report … can … reduce controversy due to the current subjective assessment …”
Value added to training

**Value added by the animation software**
- Greatly Improved: 5
- Improved: 6
- No change: 1

**Value added by the Event and SOP reports**
- Greatly Improved: 5
- Improved: 4
- No change: 2
- No response: 1

**Value of the Wind Shear Exercise (only 7 pilots exposed)**
- Greatly Improved: 2
- Improved: 5

**Interest in having a DVD of their experience**
- Yes: 4
- No: 4
- Undecided: 4
SOQA Dem/Val Standard Operating Procedure (Event Sequence) Report

Takeoff

Session Summary

| Number of SOP sequences detected in this session | 6 |
| Number of out-of-range events detected         | 0 |

Session Details (out-of-range events shaded red)

<table>
<thead>
<tr>
<th>Normal Event Sequence</th>
<th>Nominal Time (sec)</th>
<th>Average Variance</th>
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</thead>
<tbody>
<tr>
<td>SOP-Throttle_At_100</td>
<td>0</td>
<td>-</td>
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<tr>
<td>SOP-Speed_above_50</td>
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<td>0.6</td>
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<tr>
<td>SOP-Speed_above_100</td>
<td>18</td>
<td>0</td>
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<tr>
<td>SOP-Speed_above_150</td>
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<tr>
<td>SOP-Pitch_Above_15</td>
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<td>SOP-Airborne</td>
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<tr>
<td>SOP-HAA_100</td>
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<tr>
<td>SOP-Gear_R retract</td>
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<td>2</td>
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<td>SOP-Flaps_At_Zero</td>
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<tr>
<td>SOP-HAA_1000</td>
<td>59</td>
<td>1.8</td>
</tr>
</tbody>
</table>
SOQA - TOP TEN EVENTS

- **Approach - Late Gear Ext**
- **Approach - Late Flaps**
- **Firm Touchdown**
- **GPWS - Windshear**
- **GPWS - Do Not Sink**
- **Overspeed Flaps 10**
- **Overspeed Flaps 15**
- **Overspeed Gear**
- **Overspeed Flaps 25**
- **Overspeed Flaps 30**

Event Definition:
- High Event Count
- Medium Event Count
- Low Event Count

**Event Count**
- 0
- 20
- 40
- 60
- 80
- 100
- 120
SOQA Flight Safety Department Benefits

➤ A larger volume of aggregate data to replace the diminishing availability of live flight data

➤ Improved operational safety through more effective training

➤ Identification of patterns and trends which will identify problems in many areas such as unstable approaches, the exceeding of operating limitations, and training deficiencies

40 Systems – 6 Airlines
Thank You