Estimator Development and Process Automation

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Things Change....

• Automation creates velocity and capacity by:
  • Permitting seasoned professionals to do more enterprise/global problem solving and consulting
  • Enabling emerging professionals and junior analysts to work more complex efforts
  • Provide general capacity by reducing time required for routine transactions/calculations

• Challenge of Automation:
  • Analysts’ progress through levels of complexity accelerated
  • Knowledge depth and seasoned professional population may erode

Let’s Explore is this is an issue or an opportunity...
Estimating is a Timeless Profession

Through All of History there has been a need to understand the time and resources related to
• Building infrastructure
• Providing support and logistics
• Developing and delivering assets and equipment
....and much more

While titles, approaches, accolades, and accountability have evolved –
the “estimator” has been an integral part of human progress

What Estimators Do is Timeless – How We Do It Is Always Evolving
Definition of an Estimator

An Estimator is ...

... a Financial Analyst who Understands Technical Requirements

... a Technical Expert who Understands Financial Analysis

Common Attributes of Estimating Professionals...

Experience

- Industry Knowledge
- Finance Familiarity

Education

- Finance or Technical Degree
- Project Management
- Advanced Mathematical Concepts

Interest

- Technical Acumen
- Natural Curiosity
- Product Enthusiasm

Personality

- Outgoing
- Confident
- Self-motivated

It’s All About Aptitude
Estimating – How We Do It is Always Evolving

1930s – 1970s

- **Data Management**
  - Manual Collection
  - Limited detail
  - Data Isolation

- **Paper-centric**
  - Cost Ledgers
  - Manual Data Plots
  - Manual Calculations
  - Shortcuts/Rules of Thumb

- **Silo Environments**
  - Minimal Cost Trades
  - Rigid Processes
  - Large Industry Population

Transformation Highlights

- Data Mining Approach
- Spreadsheets/Data Manipulation
- Statistical Analysis Automation
- Process Technology
- Product/System Complexity

Current Environment

- **Software Leverage**
  - Statistical Analysis
  - Data Analytics
  - Pricing Tools
  - Spreadsheets

- **Data Management**
  - Automated Collection
  - Data detail
  - Data Fusion

- **Digital Environments**
  - Non-cost data
  - Process transformation
  - Industry consolidation

Decades of Experience and Incremental Development

Years of Experience and Tool Training/Leverage

Automation of Tools, Analysis, and Processes Accelerate Estimator RAA Growth
## Benchmarking Some Elements...

<table>
<thead>
<tr>
<th>Definition</th>
<th>Purpose</th>
<th>Value</th>
<th>Risk</th>
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<tbody>
<tr>
<td><strong>Processes</strong></td>
<td>Defined method to execute a task or project</td>
<td>Produce consistent products and information</td>
<td>Provides consistency and repeatability</td>
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<tr>
<td><strong>Tools</strong></td>
<td>Artifact that enables effective task completion</td>
<td>Leverage industry experience and knowledge</td>
<td>Tailored repeatability</td>
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<tr>
<td><strong>Automation</strong></td>
<td>Designed application that executes tasks</td>
<td>Knowledgebase built into the process</td>
<td>Increased throughput</td>
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### Diagram:
- **Processes**: System controls for health monitoring and stability.
- **Tools**: Levers to improve analyst performance.
- **Automation**: Solutions that limit analyst insight.

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**Tool and Technology Advancement Leads to Process Transformation**
## Putting It All Together…

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<tbody>
<tr>
<td></td>
<td>Highly manual/paper-based</td>
<td>Basic software/manual data fusion</td>
<td>Robust software suites/highly integrated</td>
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<tr>
<td>Engineering/SoW-centric</td>
<td>Program perspective</td>
<td>Holistic business management</td>
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<tr>
<td>Managing the Business</td>
<td>Data-driven forecast limited to production cost</td>
<td>Evolution of forecasting with limited dependency on SoW</td>
<td>Product/capability aligned planning and forecasting</td>
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<tr>
<td>Shaping the Business</td>
<td>Limited alignment between budgeting/planning and acquisition</td>
<td>Evolution of data and statistical modeling as a standard practice</td>
<td>COTS Analysis Software Data “lakes” for rapid exploration</td>
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**Career spent mastering a specific role (many years)**

**Multiple roles evolving to a focused SME role (10-20 years)**

**Broad cross-discipline experience quickly (<10 years)**

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**Environment & Approach Changes Growth Focus and Timeline**

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Path to Professional Development

- Experience
  - Education
  - Early Career Assignments
  - Functional Foundations
  - Leading and Training

- Mentoring
  - Multi-discipline & cross-functional
  - Beyond Org/Company
  - Knowledge Expansion
  - Mutually Beneficial

- Opportunities
  - Primary Assignments
  - Short-term Roles/Actions
  - Development Events
  - Economic Benefit

Find the Best Resources and Starting Right

People and Enterprise-focused Development

Minimize Constraints and Monitor Analytical Insight

Achieving Career Knowledgebase & Capability in Less Than 10 Years
Summary

• Tools and Automation are enablers to focus on critical analysis
• Understanding and insight is essential for analysis credibility
• Recruitment and professional development is a high priority for leaders and subject matter experts
• Retaining people in the profession for a career is essential
• What happens after “Year 10”?

Conclusions

Issues:
• Subject Matter Expert population transforming
• Common themes and collaboration outside of work organization is limited

Opportunities:
• ICEAA provides stability and intellectual environment for growth
• Functional infrastructure in industry and government remains vulnerable to affordability reductions

Is ICEAA Prepared to Be the Professional Linkage to Ensure Sustained Expertise
DISCUSSION