UNLEASH THE POWER OF LIMITLESS CONNECTIVITY
Operational Transformation

The Tooling Abyss

Joann Shumard
Vice President, Engineering Operations
Comcast HQ
Industry and Tool Development

- Cable Television Originates 1940s
- First 50 years of innovation focused on television technology
- 1995 Industry transformation—introduction of HFC and high-speed internet (4000kps)
- Next 25 years, exponential growth and innovation in transforming the industry
- Software electronic cable tools to measure and monitor have had to evolve with the architecture
The Tooling Abyss

What is the tooling abyss and how is it created.....

- Centralized tooling system
  - Just create a new one for new technology
  - Departments within a centralize organization can be misaligned
- Decentralized tooling
  - Gap tool creation
  - Local team creation doing duplicate work
- Tool ownership conflict
  - Collaborative versus competitive strategy
- Cost impact
  - Inconsistency and duplication is costly
When is too much information or too many tools overwhelming for the user...

**Multiple Tool Interfaces**
- Building new tools without a strategy for the previous tool creates swivel
- Swiveling takes time away from tasks while users search for information
- Multiple tool interfaces requires multiple development teams to manage them

**Adding Information**
- New technology innovation drives new information into tools
- Information overload is a risk of the methodology of providing as much information as possible without consideration of the task
- Information avoidance is a result of information overload
Solution-Tooling Development Strategy

Where are we now?

Reliable Current Operational State

Innovation & Technology Drivers

Strategy Alignment

Conflict Management Culture

Guiding Principles of Development

Software Development Lifecycle Execution

Do we have development standards?

Are people using it?

Why are we building?

Why are we changing?

How will we get there?

Who will do what?

Build and Execution Strategy

Innovation and Change Strategy
Tools are created and evolved to meet business needs....

New Industry Technology
- Innovation changes tooling needs (Build new or add to existing)
- Architecture evolution creating multiple structures to be supported

Tool Infrastructure Technology
- Reliability, planned upgrades, and technology obsolescence
- Capacity growth and complexity of algorithms and data

Process Improvement
- Removing manual swivels between tool and creating automated flows
- Process changes driven by evolving architecture

User Experience Enhancement
- Cost efficiency through technician time efficiency, time saved per task
- Increased value by improving response time and ease of using UI
Balancing Strategic Pillars

- Leadership alignment recognizing the importance of governance and accountability
- Four key balanced pillars
  - Core engineering (Product architecture)
  - Software development (Software standards)
  - Operations (Support and field operators)
  - Finance (ROI, budget, financial business value)
- Collaboration not competition achieves the strongest results
- Defined conflict management culture influences success and job satisfaction
Clear policy and strategy

Key Questions To Ask

- Is this requirement strategically aligned and governed?
- What is driving the change or the problem that needs to be solved?
- Who and what development team is responsible for solving it?
- How will the user behavior be influenced, and what is the behavioral expectation?
- How does this fit in the business financial model?
- Should this be developed internally or purchased?
Lifecycle Development Execution

Business Value Strategy

- Engineering Deployment Of New Technology
  - If tooling systems are not built or updated for the new technology, what experience would fail?

- Software Development
  - If there was no investment into the systems to modernize and grow in capacity, would the system tools become unreliable or unusable?

- Operational Requirements
  - How will requested features and functionality improve the user experience and drive business value?
  - Will there be improved efficiency or saved time per task and will they use it?

- Financial Requirements
  - Is there a positive return on investment (ROI) analysis of the cost to create the tool or enhancement compared to the value benefit for the business?
Successful Complex Integration

- Adoption is quick and utilization is high
- Business value, ROI is achieved, task time is reduced, and positive investment to the business
- Business behaviors, ensuring the expected changes in how users change and utilize to impact business metrics and customer satisfaction
- User feedback, user experience is being simplified, information is valuable and not overwhelming, and positive response from users
Conclusion

How the tooling abyss is created

Information overload and avoidance

Aligned tool development strategy

Balanced business pillars and value assessment

Development principles and standards

Success Factors
Thank You!

Joann Shumard
Comcast
Vice President, Engineering Operations
Phone: 770-652-3836