



# E-learning Lifecycle Costs

## Up-Front Decisions for Managers and ISDs

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# Topics

- 1 Research framework**  
Upgrades versus updates
- 2 Research findings**  
Expect change in your future
- 3 Decisions**  
Designing change-tolerant courseware

# Courseware in the Fast Lane



- **Content**

- **Environment**

# Requirements



- Instructional goals
- Audience definition
- Instructional strategies
- Content organization
- Assessment strategies
- Delivery environment
- Standards compliance
- User interface
- Development tools
- Evaluation plan

Source: Cennamo & Kalk, 2006



# Stakeholder Signoff

- **Baseline the level of effort**
- **Prevent scope creep**
- **Change requires re-negotiation**

# Customer Review

*Nice house, but...*

# Cost of Requirements Change



**Changing requirements is...**



**A change of scope**

**Involves re-negotiation**



**High impact**

**Affects the entire course**



**Costly after deployment**

**Worst-case scenario!**

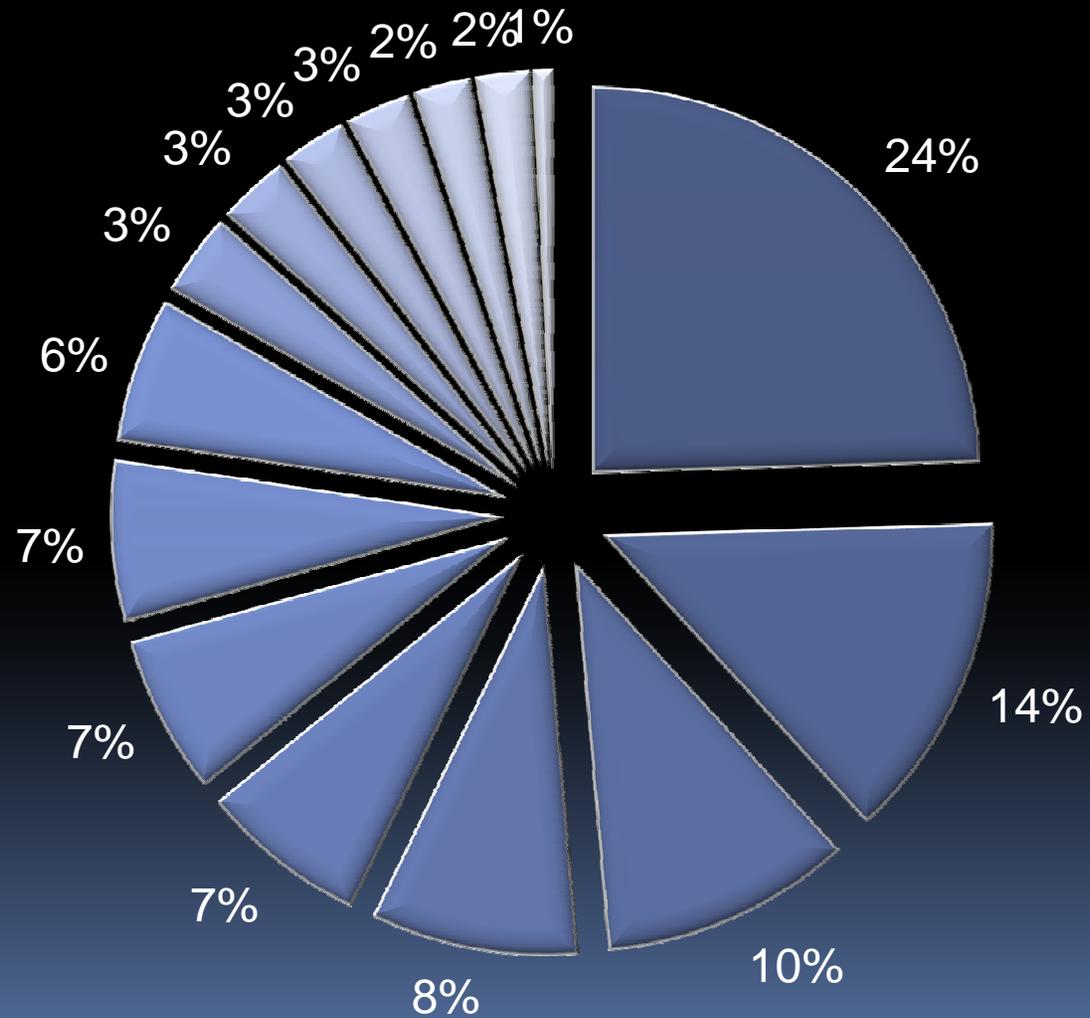
# Research

- **24 companies**
- **Two-year maintenance period**
- **Pool of 339 courses**

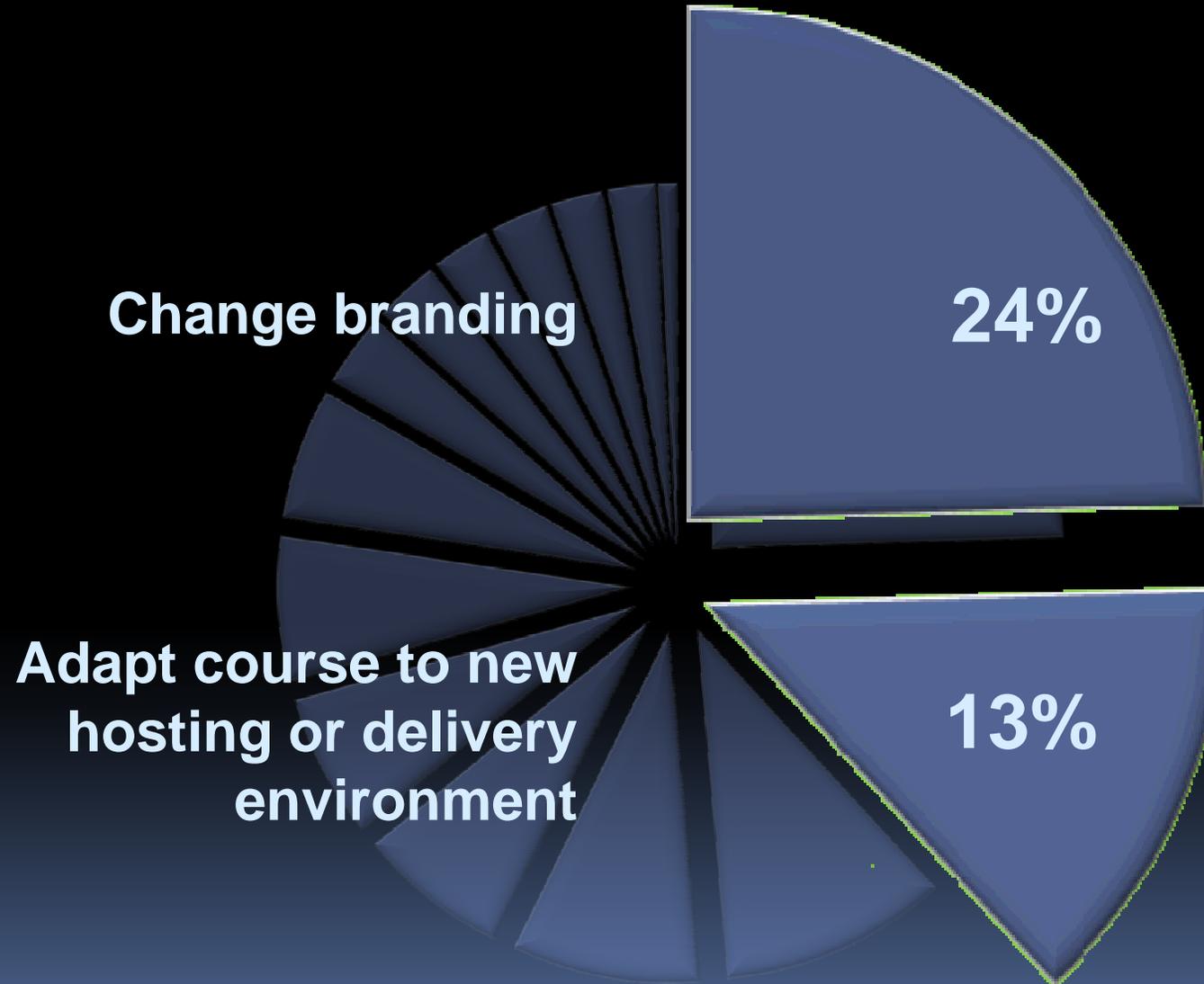
# Assess frequency of 16 different requirements

- Adapt course for new audience
- Adapt to fit new course length
- Change level of interactivity
- Change level of multimedia
- Change level of simulation
- Change assessment method
- Translate course
- New hosting or delivery environment
- New authoring environment
- Change display specifications
- Change navigation controls
- Change branding
- Become SCORM compliant
- Become Section 508 compliant
- Become IMS QTI compliant
- Conform to tech standard not mentioned above

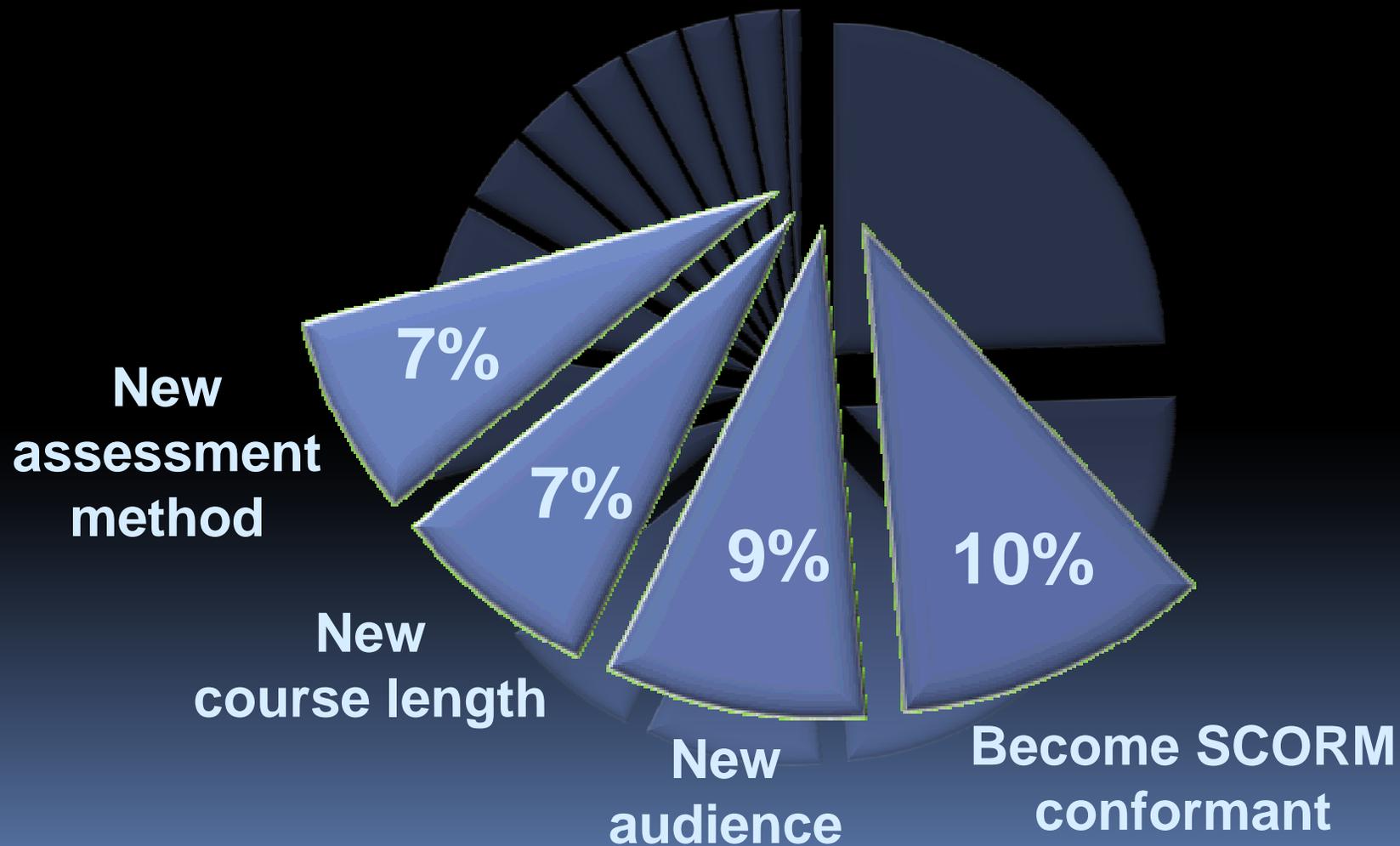
# Breakdown of Maintenance Activities



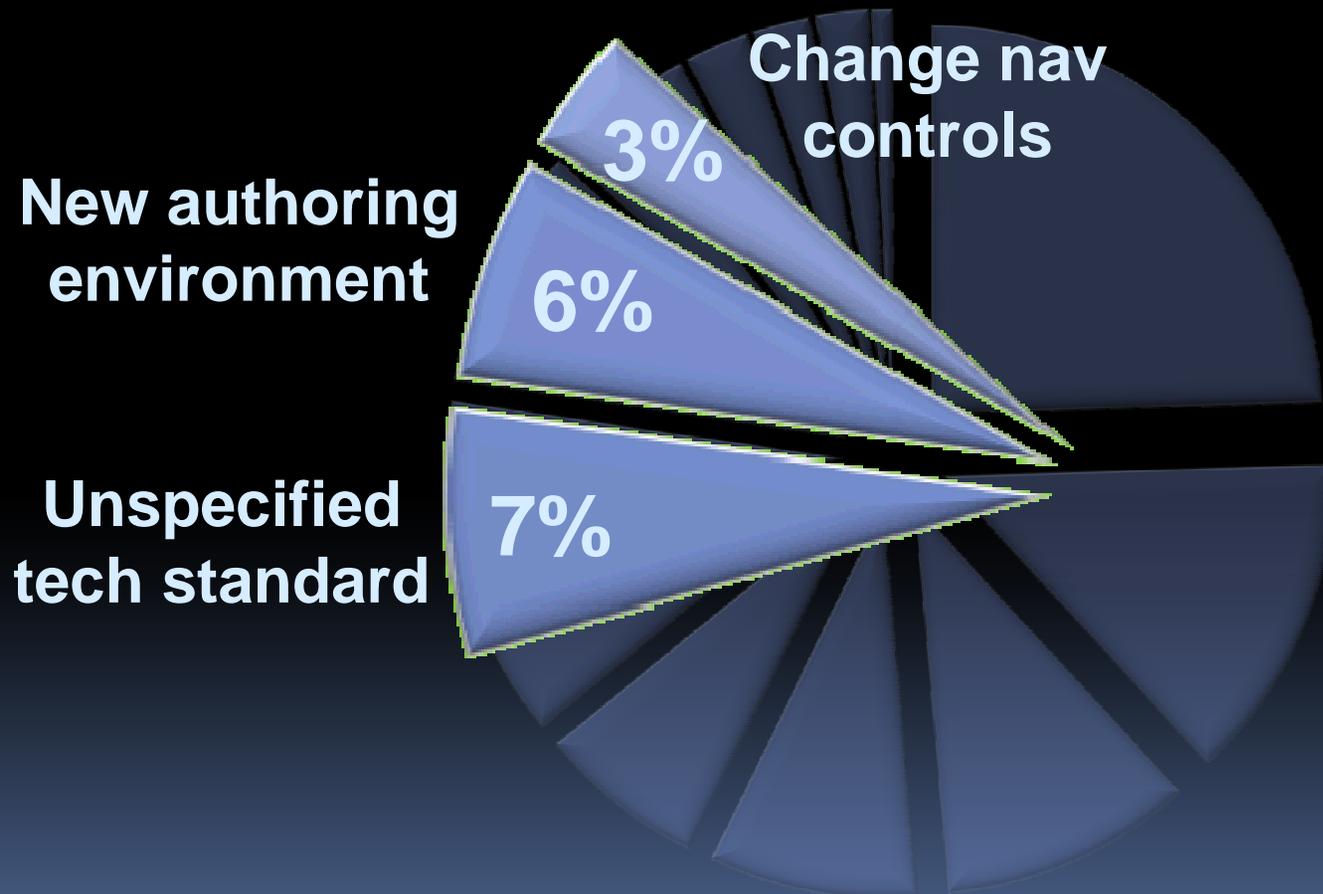
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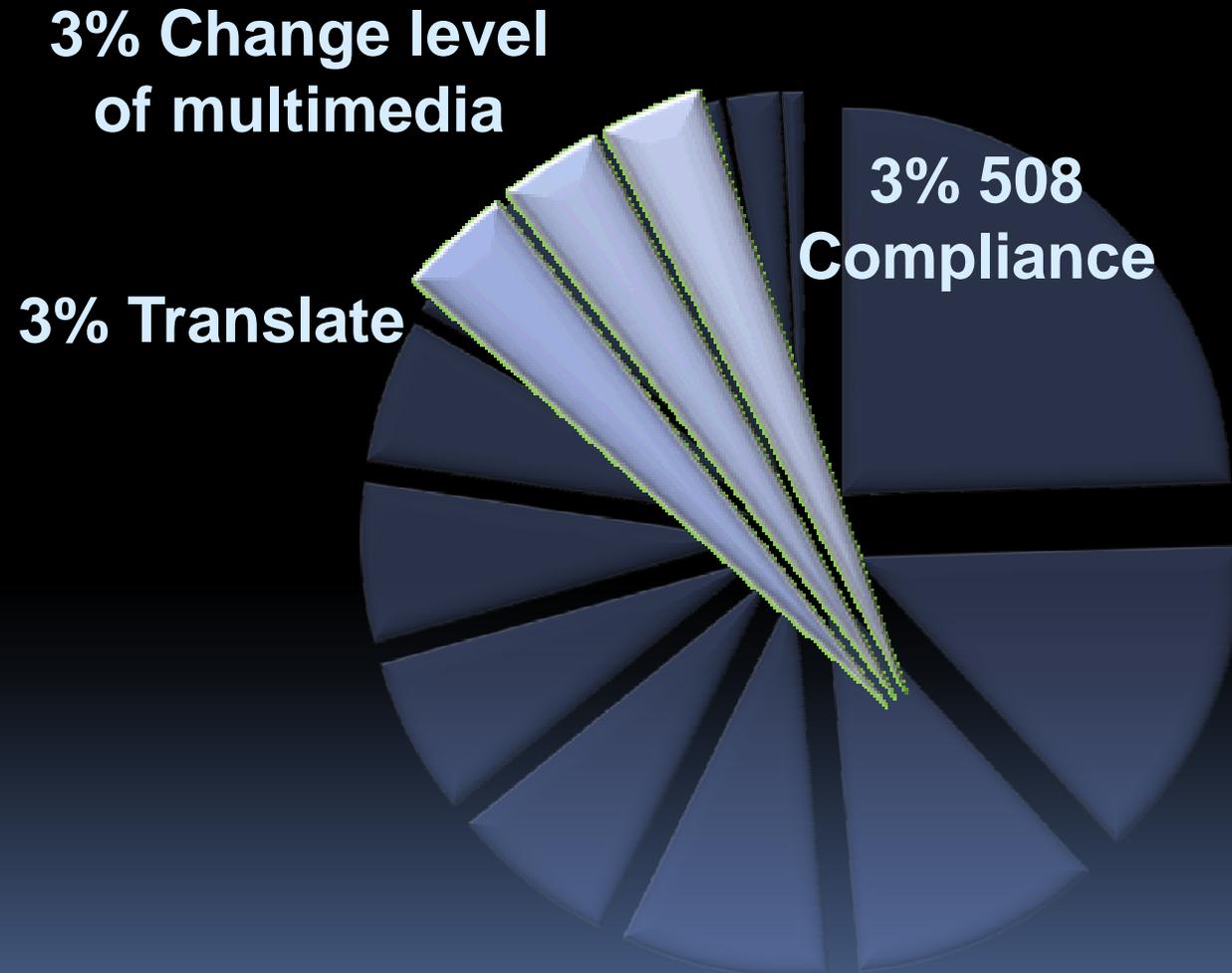
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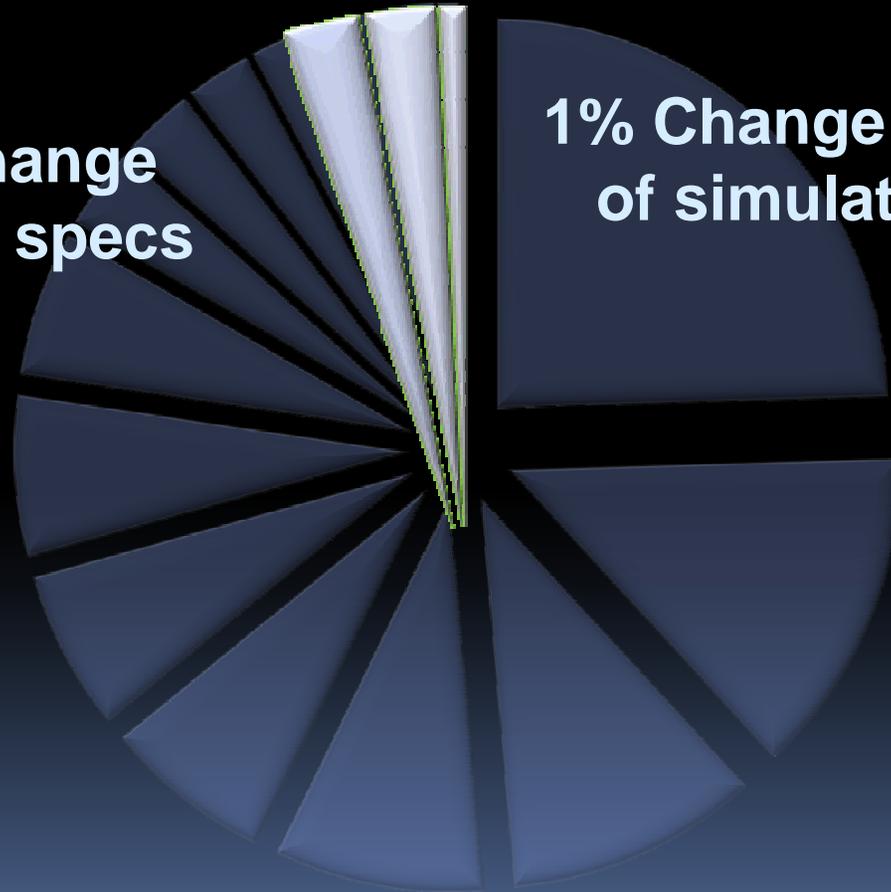


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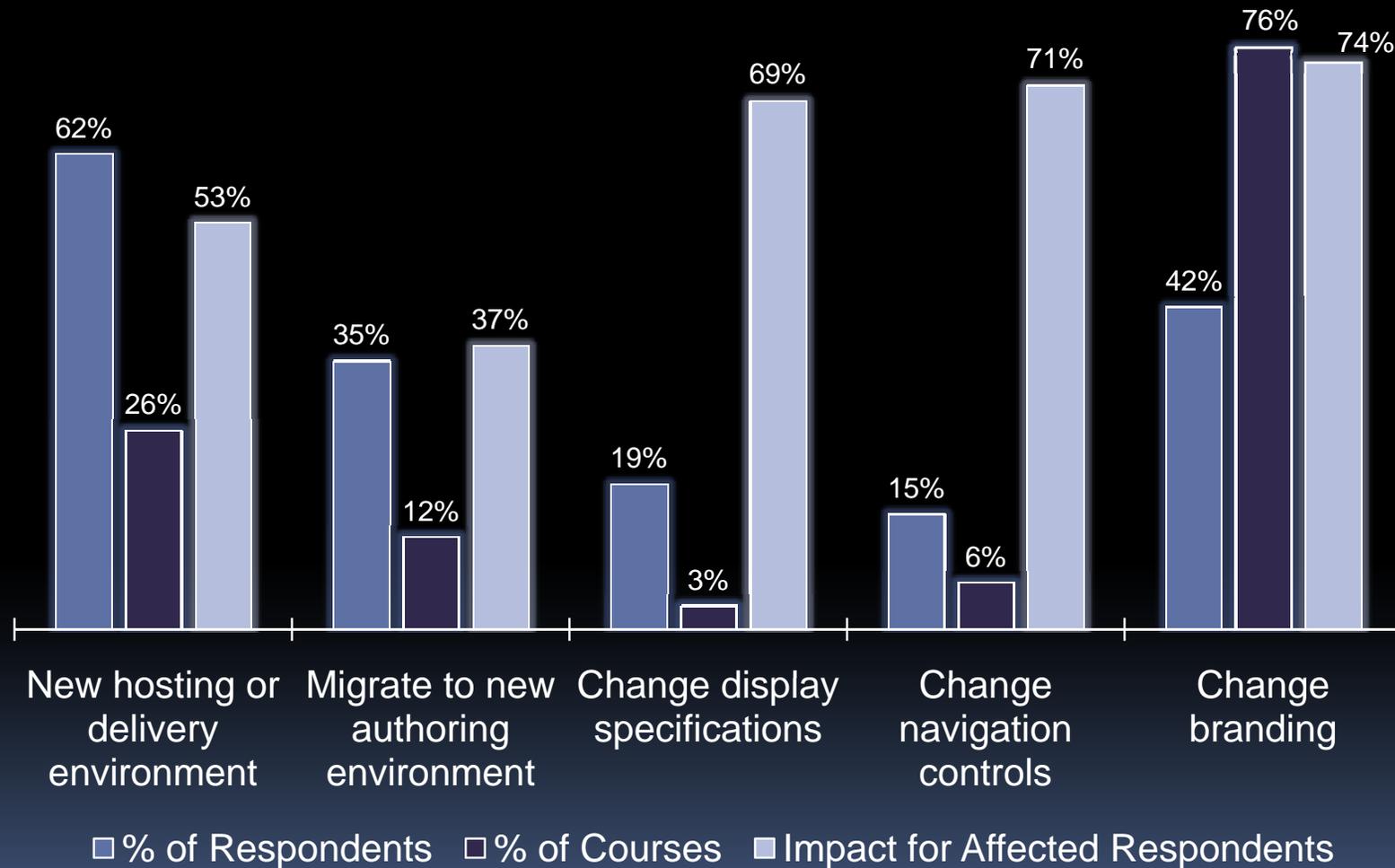
2% Change level  
of interactivity

2% Change  
display specs

1% Change level  
of simulation



# Technical Requirements



No requirement changes  
Your Odds:  
in two years

72%

# Decisions



- Resource Planning

- Design

# Recommendation from the field



**“Track maintenance labor  
independently of new  
courses”**

# Change-Enabling Technologies

- **SCORM**
- **Template-based authoring and XML storage**
- **Simplified Technical English**
- **Future technologies?**

# Summary

- **Yes, reality resembles perpetual scope creep**
- **It's the industry, not just you**
- **Consider this when making design and planning decisions**
- **Refer to the paper for data**

# Discussion

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