

Plateaus in long-term appropriation of an information system

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Technology appropriation is:

“the way that users evaluate and adopt, adapt and integrate a technology into their everyday practices” (*adapted from Carroll et al. 2002*)



Objectives

- How do users in an educational environment adopt, explore and apply a technology to derive value from it in the long term?
- What triggers long term use of a technology?



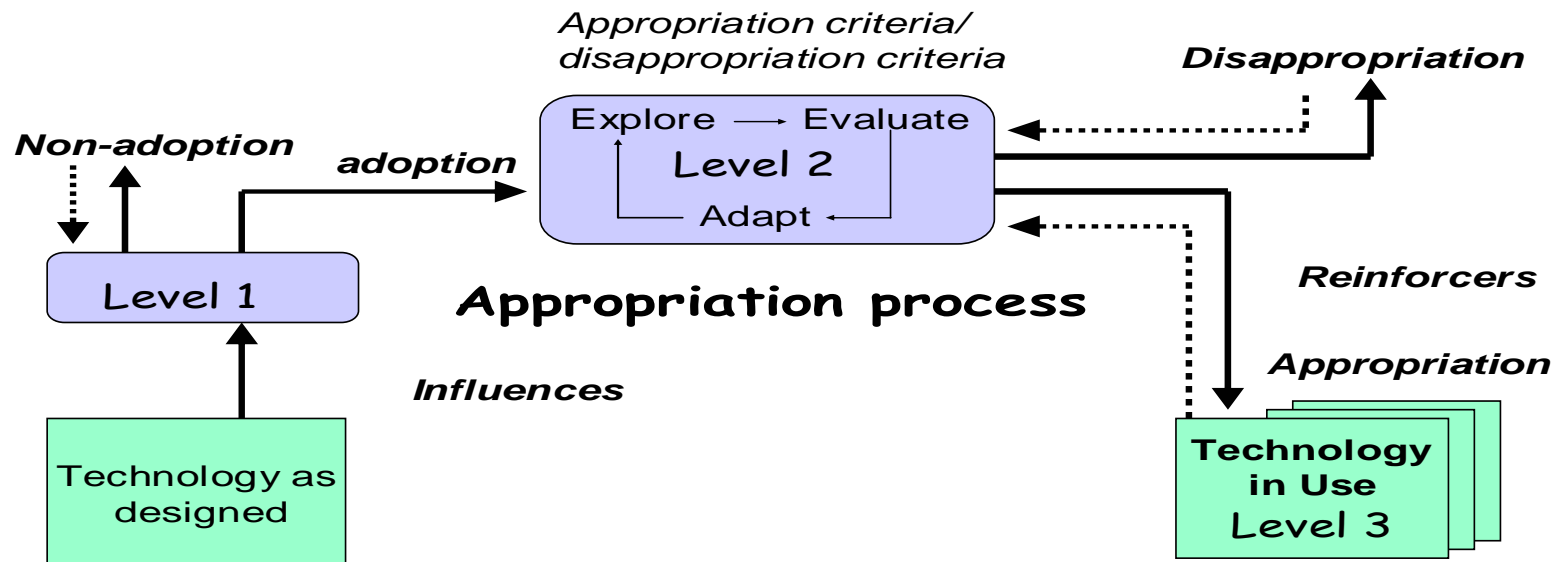
Relevant theories

- **Technology Acceptance Model (TAM)**
 - *Adoption and usage are predicted by intentions to use, which in turn are influenced by perceptions and attitudes (Davis 1989)*
- **Diffusion of Innovation Theory (DOI)**
 - *Innovation decision process takes place in sequential stages and is based on major influences (Rogers 1995)*

Some theories

■ Model of Technology Appropriation (MTA)

(Carroll et al. 2002)



Relevant theories

- **Punctuated Equilibrium Model (PEM)**

- *a long period of relatively unchanged form called “stasis” may exist among species followed by radical change over a short duration called “punctuation” when new species arise abruptly.
(Gould and Eldridge 1972)*

Some theories

- **Punctuated Equilibrium Model (PEM)**
 - Changes in organization behavior as innovations are diffused (*Romanelli and Tushman 1994; Hubermann et al. 1999*)
 - Adaptation of a technology as users modify it.
 - *Most adaptation takes place following initial implementation*
 - *Use of a technology stabilizes (Orlikowski 1994; 2000)*



Research Methodology

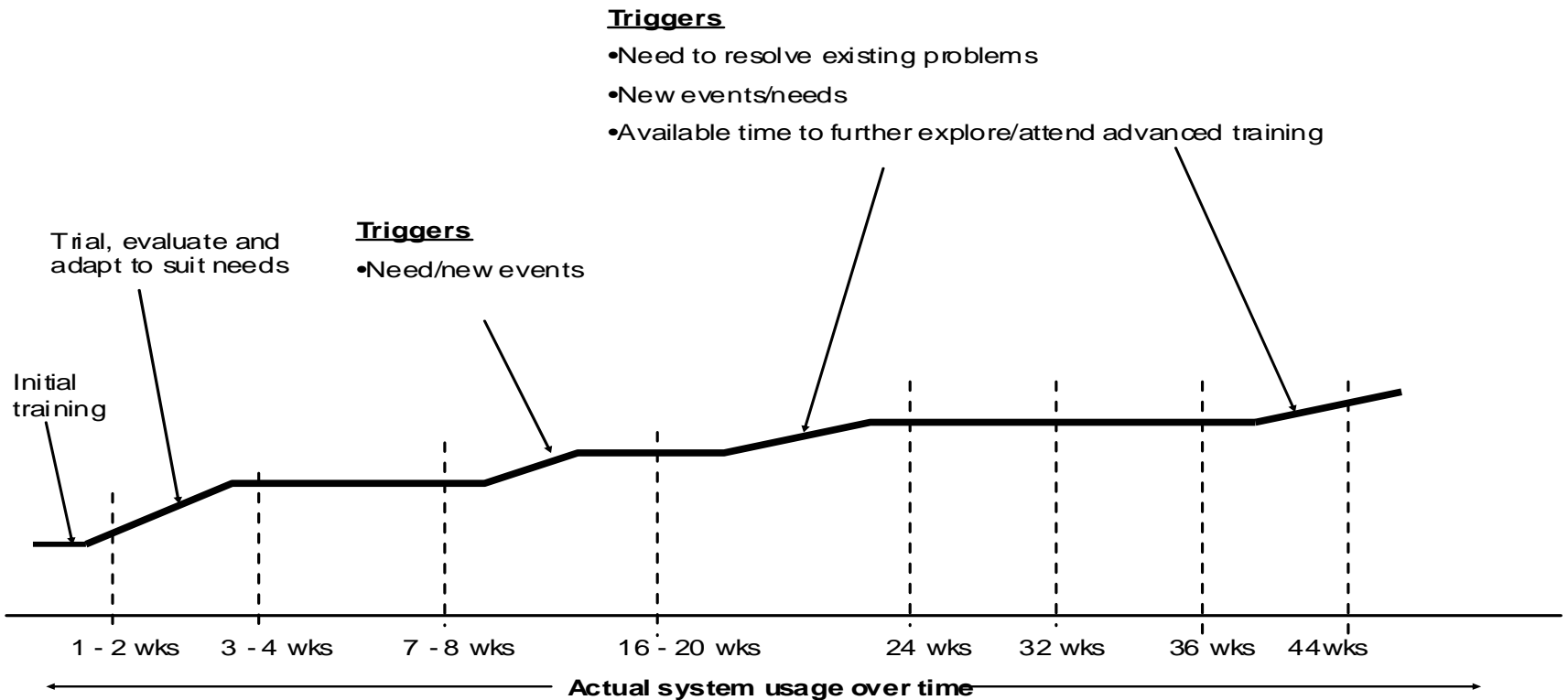
- Longitudinal study – LMS users
- Educational setting – University of Melbourne
- Duration of the study– between Jan 2006 & March 2007 (44 weeks)

Research Methodology

Timeline based on Technology use	Number of participants	Techniques
1- 2 weeks after initial encounter	23	Interview
3 – 4 weeks	Three groups of 3, 4 and 2	Focus group + scrap book + Interview
7 – 8 weeks	22	Participant observation + scrap book
16 – 20 weeks	22	Follow-up interview + participant observation + scrap book
24 weeks	22	Follow-up interview + participant observation + scrap book
32 weeks	8	Follow-up interview + scrap book
36 weeks	6	Follow-up interview + scrap book
44 weeks	11	Follow-up interview

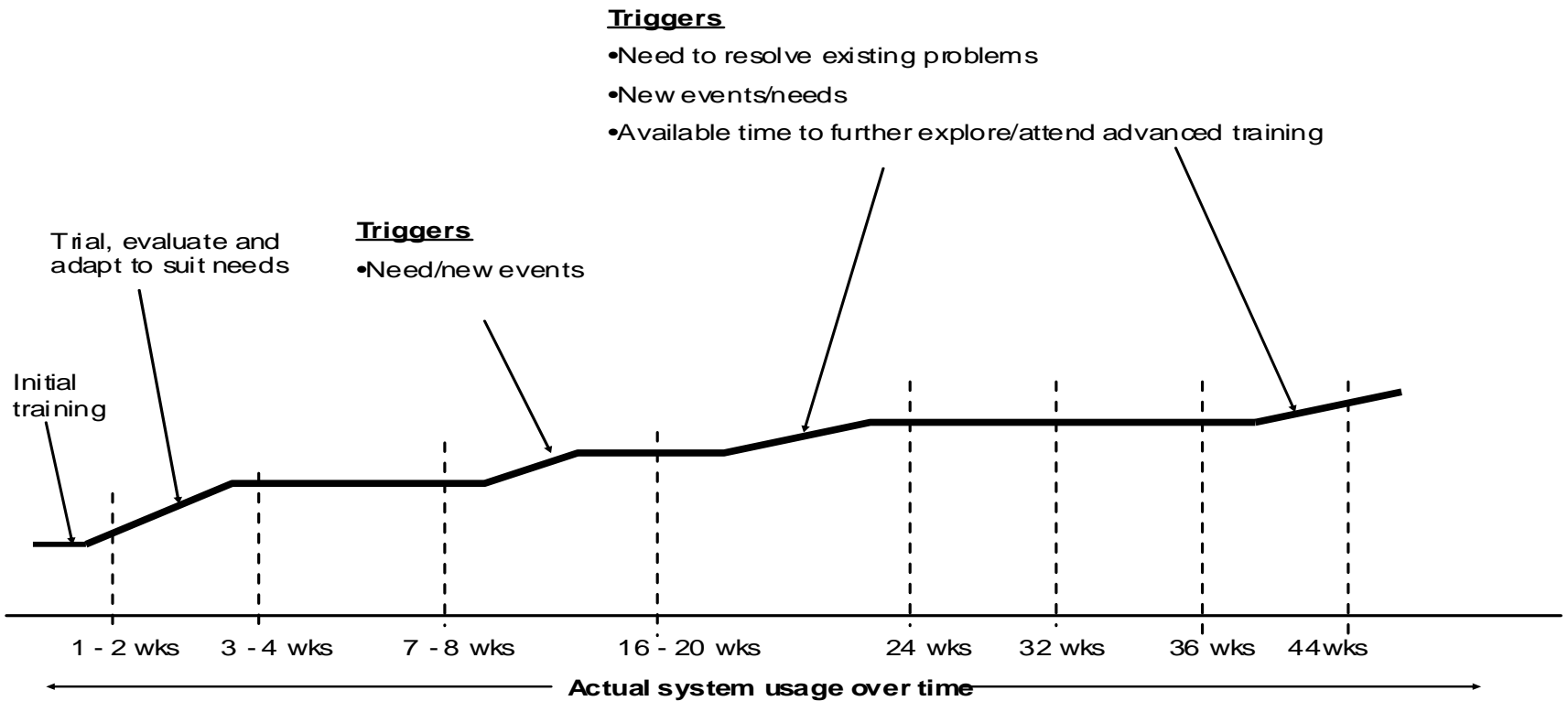
Decision to adopt not sufficient to support long-term use


Process of appropriation



Appropriation incrementally evolves over time

Process of appropriation





How can we explain the presence of multiple plateaus of temporary stabilization in longer term use?

Stabilization along-side existing problems and work-arounds

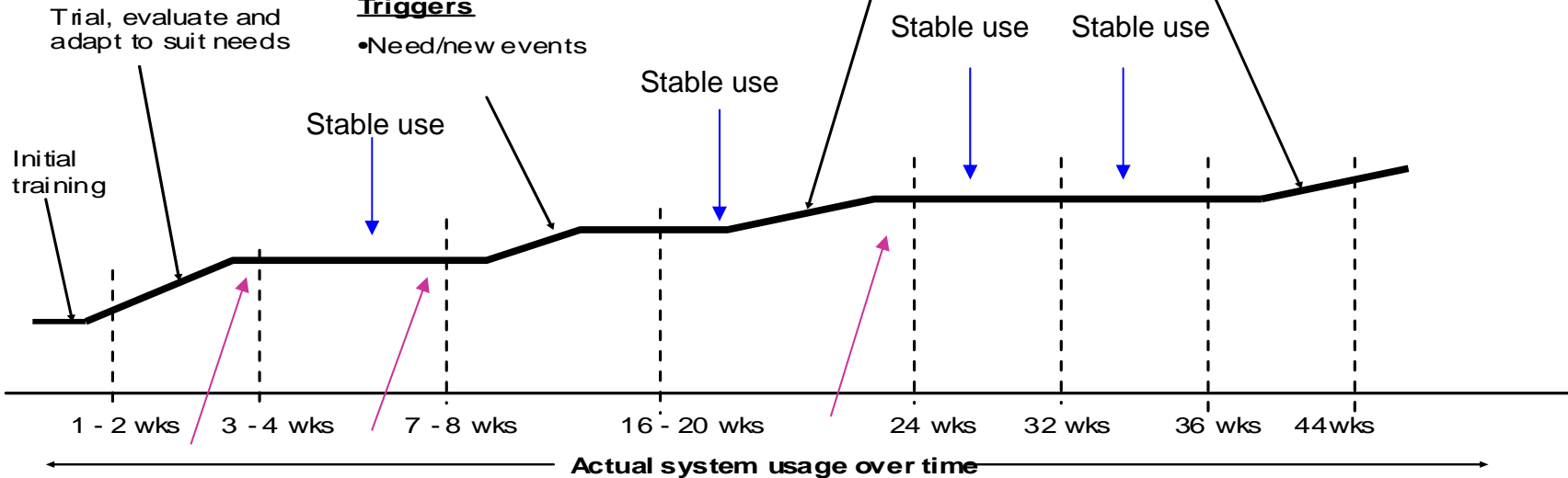
Process of appropriation

Triggers

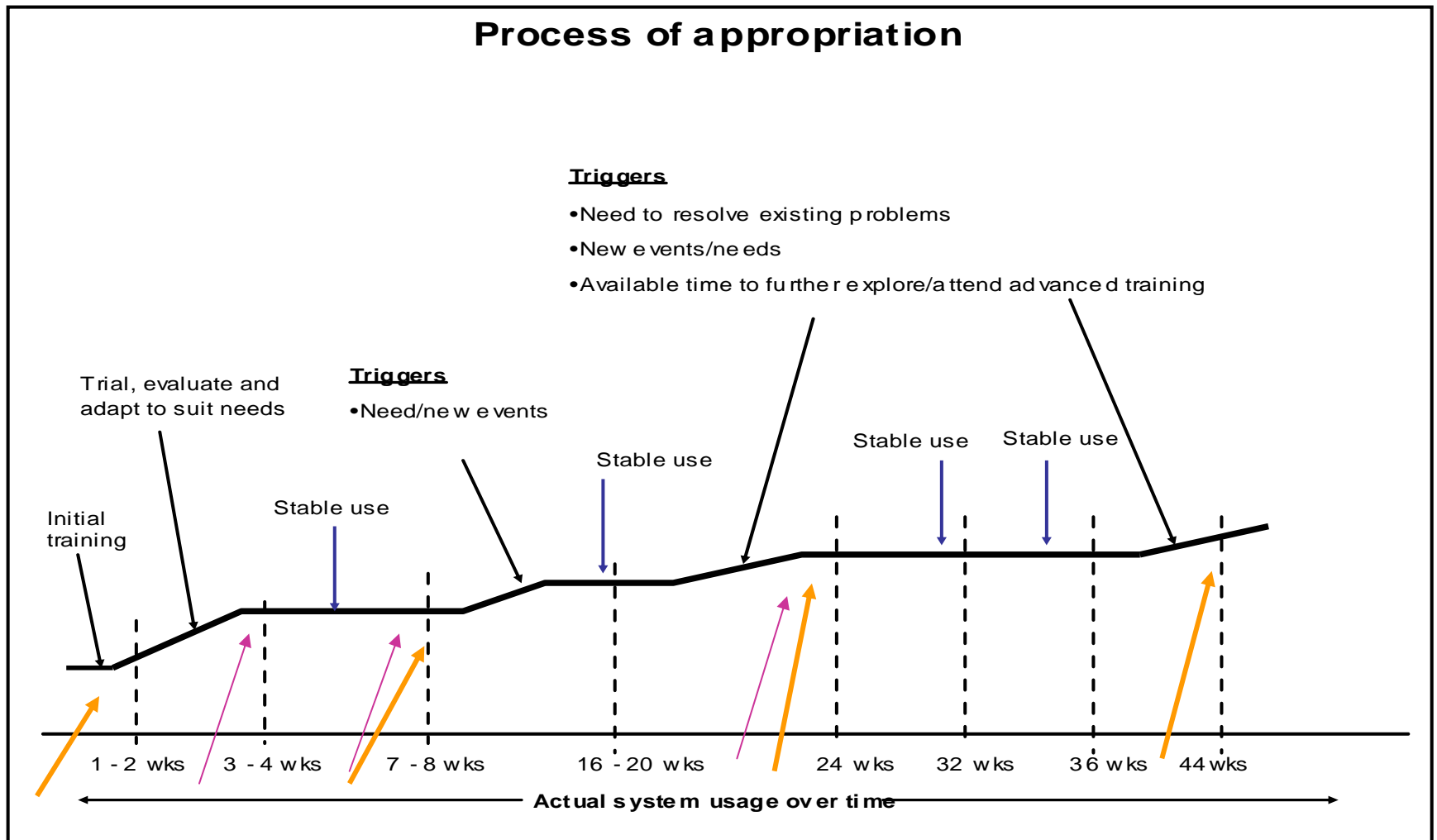
- Need to resolve existing problems
- New events/needs
- Available time to further explore/attend advanced training

Triggers

- Need/new events

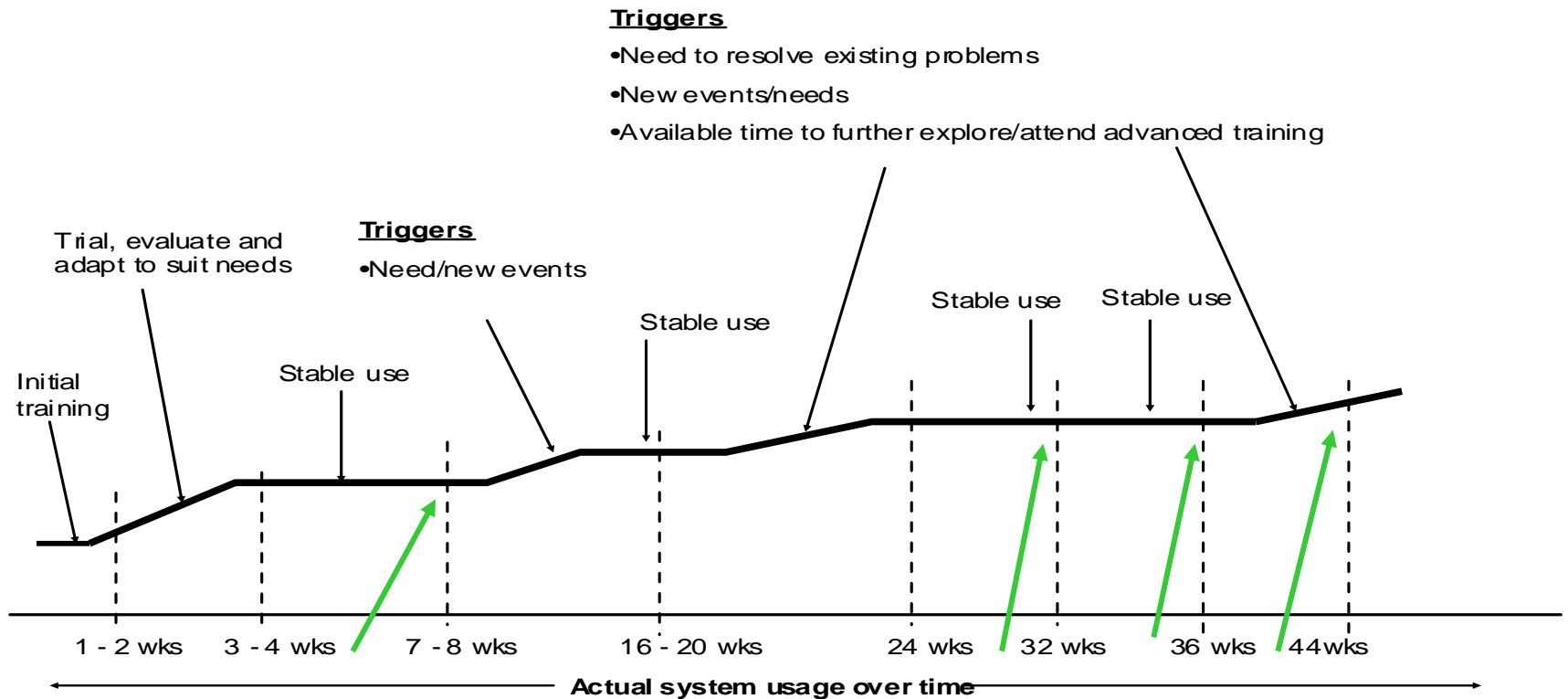


Stabilization as users resolve problems



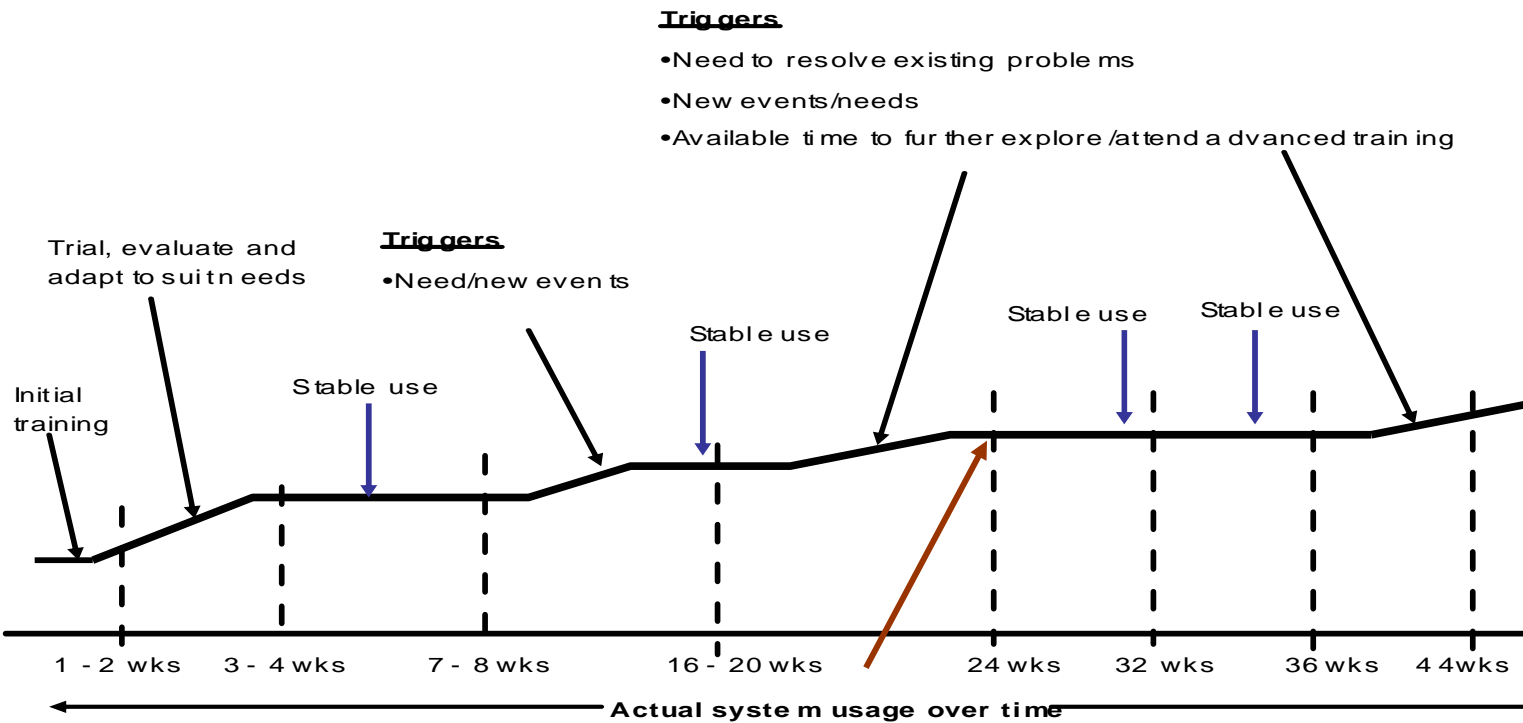
Stabilization due to lack of time


Process of appropriation



Stabilization due to negative word of mouth

Process of appropriation





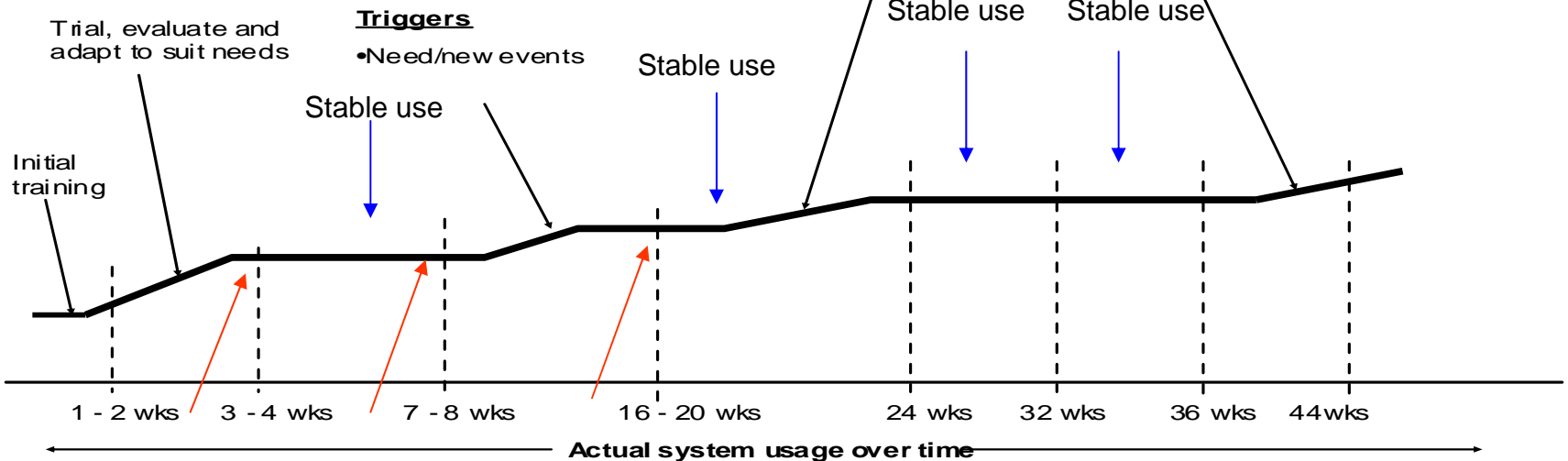
Can we then conclude that multiple stabilizations lead to continued long term use?

Rejection of a technology long after adoption.

Process of appropriation

Triggers

- Need to resolve existing problems
- New events/needs
- Available time to further explore/attend advanced training





Conclusions

- Process of appropriation is incremental over time.
- Multiple windows of opportunity exist - choose to use a suite of technology-based solutions.
- Rejection of a technology may take place long after adoption



Conclusions

Given these findings, how can we support and nurture adaptation as a process of appropriation in the long term?



Conclusions

- Reasons for stabilization and its timing in longer term use
- Studying an innovation in isolation may not be sufficient - mutual adaptation take place among a suite of technologies.



Conclusions

- A variety of support mechanism at crucial time periods
 - Manuals
 - On-line help within a technology
 - The ability to contact local IT support and peers to resolve problems.

Conclusions

- Ongoing training at crucial time periods - a key factor
 - Class-room based
 - One-on-one contact sessions with trainers, local IT-support staff and super-users (peers)



Future research

- Extend our understanding on the influences that encourage and discourage continued long term use.
- Investigate longer term use of a range of technologies by different cohorts.



Questions