

Explaining variation in an HIV testing trial: A new model based on diffusion of innovations theory

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INTRODUCTION

Complex intervention trials may require health care organisations to implement new service models. In the RHIVA 2 trial of rapid HIV testing in primary care some participating organisations achieved high recruitment, whereas others found it difficult to assimilate the intervention and were low recruiters. We sought to explain this variation and develop a model to inform organisational participation in future complex intervention trials.

BACKGROUND

The British HIV Association and the National Institute for Health and Care Excellence both support community-based testing in areas where the prevalence of diagnosed HIV is above 2 per 1000 adult population. The RHIVA 2 trial implemented and evaluated this guidance aiming to determine if testing in this way would lead to earlier and greater diagnosis of HIV.

- RHIVA 2 ran for 28 months and used the INSTI™ HIV-1/HIV-2 Rapid Antibody Test (sensitivity of 99.6 %)

- 40/ 45 general practises practices London borough participated where 8 per 1000 adult population were living with HIV.

- Intervention practices (20/40) offered 11,180 rapid tests, and 44.5 % of these were accepted, 14 tests were reactive, 11 were confirmed to be HIV-positive.

- The trial concluded that promotion of opt-out rapid testing in general practice led to an increased rate of diagnosis, and might increase early detection of HIV. The implementation of HIV screening in general practices in areas with high HIV prevalence is recommended.

METHODS

Objective: There was marked variation between the 20 intervention practices in how many rapid HIV tests were offered and accepted. We sought to explore this variation through a retrospective process evaluation..

Data Sources:

- several hundred hours of ethnographic observation

- 21 semi-structured interviews

- trial data (e.g. number of tests offered and declined, number of HIV positive tests)

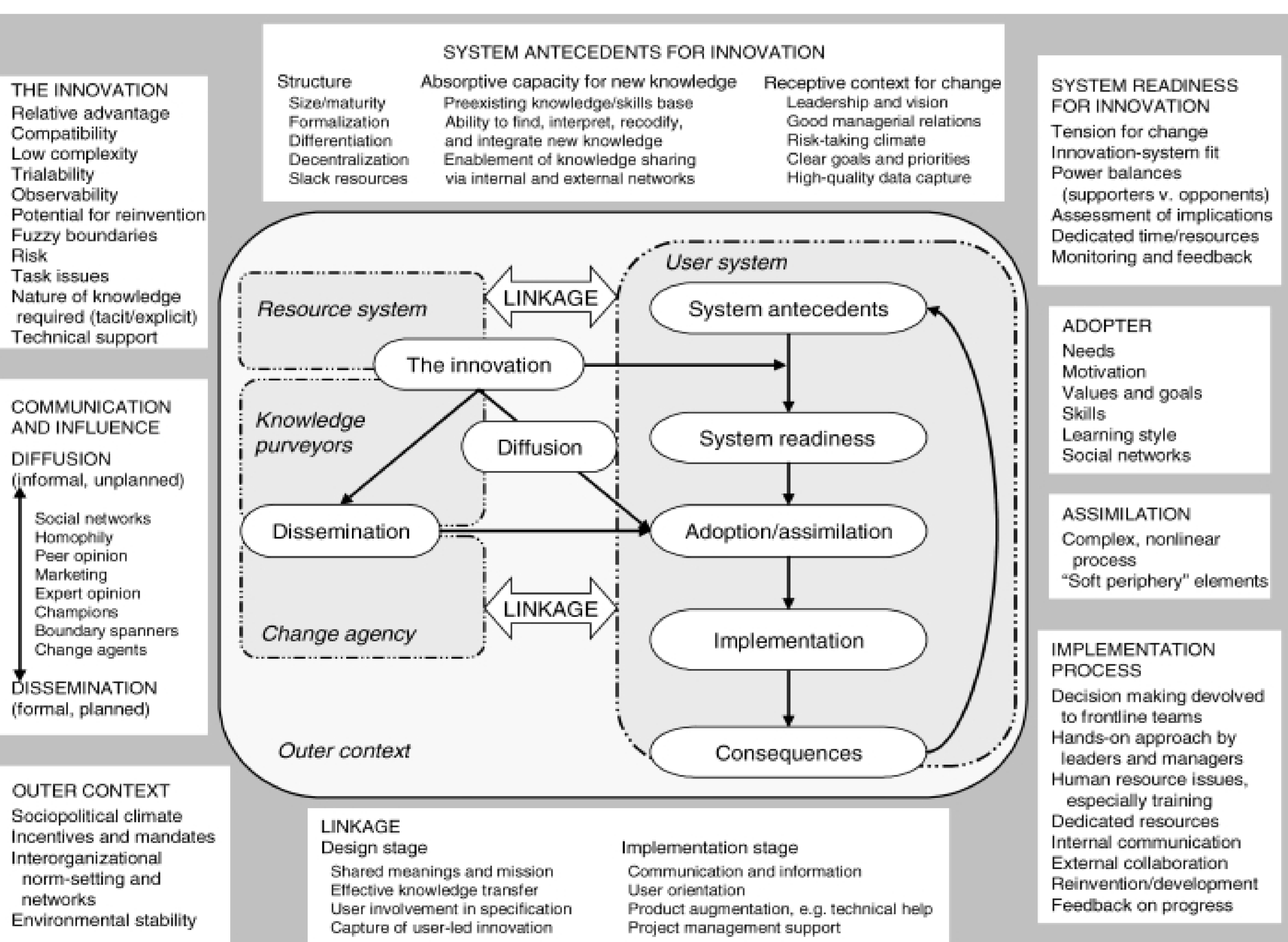
- analysis of routine documents (e.g., patient leaflets, clinical protocols) and trial documents (e.g., inclusion criteria, recruitment statistics).

Analysis: Qualitative data were analysed thematically using—and, where necessary, extending—Greenhalgh et al.’s model of diffusion of innovations. Narrative synthesis was used to prepare case studies of four practices representing maximum variety in clinicians’ interest in HIV (assessed by level of serological testing prior to the trial) and performance in the trial (high vs. low recruiters).

THE DIFFUSION OF INNOVATIONS IN HEALTH CARE ORGANISATIONS MODEL

A wide-ranging systematic review of the diffusion, spread and sustainability of innovations in the organisation and delivery of health services identified a number of interacting components.

Figure 1: Greenhalgh et al. Diffusion of innovations in health care organisations model



References:

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FINDINGS

Practice A implemented the rapid testing intervention very successfully, offering more tests than any other practice and having a moderate decline rate (42 %). Effective implementation of the test was the result of key system antecedents for innovation, high system readiness for the rapid test, a smooth implementation process and strong adopter factors among front-line staff.

Nurse: 'Yeah, I think, the impression I get is that they think that we're been quite thorough and that we're, you know, so I think it, I think it promotes us.'

HCA: 'That we're very organised, well, she said I'm very organised and thorough.'

Nurse: 'Yeah, that we care and that we're offering a good service. – Nurse and HCA from practice A'

Practice B demonstrated moderate system antecedents and readiness for innovation. It was well organised and had a clear and harmonious differentiation of roles. The lead nurse was personally motivated and professionally supported. She spoke highly of senior doctors and vice versa and detected the most cases of HIV via rapid testing (4/11). The practice had high absorptive capacity for new knowledge and a receptive context for change.

'I think I just like doing it because it is good. When you think about the end result, is good. It makes you feel you have done something good as well. But I believe it will prevent other people as well, or protect other people'. – Nurse from practice B'

Practice C struggled to implement rapid testing. The practice was slow to offer the first test, and its rate of testing remained low throughout the study (72 rapid tests offered, 50 % declined). System antecedents were low, there was little interest or time for accommodating new innovations. There may also have been an issue about the compatibility of the test with the values of the HCA, who appeared personally uncomfortable testing for HIV.

'I don't have any problem with doing [the rapid HIV test]; the actual doing of the tests is straightforward. My colleague who should be doing them as well hasn't done one. I don't know. I went through it with her again a while ago; I don't know, two or three weeks back I went through it again with her to remind her how to do it. And I do it whenever I can, but my problem is time.... I don't know if it's a religious thing, maybe [explanation of perceived religious views of colleague]. I don't know if it's something to do with that. But she's a health care assistant; she's not a nurse. That's a difference as well.' – Nurse, practice C'

Practice D also struggled to implement testing. The 557 rapid tests that were offered during the trial period (43 % declined) may appear relatively high, but the size and consistent registration of new patients demonstrated missed opportunities for testing. Data suggests that the innovation was never effectively routinised. Practice D was impeded by a combination of structural, capacity-related and cultural factors (most crucially, limited slack resources), along with individual adopter traits and a weak process of implementation.

'But because it was coming up to the end of the financial year and everyone had to tally up QOF points for diabetes and these and this and that, it took priority... And because I'm only now doing 3 days a week, I literally split sessions between here and (another practice).. So, when I am here, they get me to do loads of ECGs and different other things, and then when I'm there, I'm doing things over there that they need doing'. – HCA, practice D'

SUMMARY OF FINDINGS

Relative advantage and simplicity of the rapid test

Providers found the instant, actionable results of the rapid test as well as its accessibility and convenience advantageous compared to venous testing.

System antecedents for innovation

Larger, more formally organised practices with an appropriate division of roles and slack resources (especially time), as well as those with strong communication networks and good managerial relations, were higher recruiters.

System readiness for the innovation

Practices with well-organised New Patient Health Checks, clear and stable staff roles for these checks, that had many supporters of rapid HIV testing and that were able to dedicate time and resources to incorporating the test smoothly into practice routines were better able to implement testing.

Adopter characteristics

Staff who perceived the test as beneficial, easy to undertake and professionally meaningful undertook more tests.

The implementation process

Uptake was smoother and more likely when both senior clinicians and managers took a hands-on approach. If practices devolved decision making to front-line teams but did not follow up with support and feedback, implementation suffered. Dedicated resources such as time, space and support for implementation appeared critical.

Reinvention and local customisation

Small adaptations to how, where and by whom the test was conducted, without losing fidelity of the core components, sometimes appeared to make a significant difference to its acceptance and routinisation within the practice, though reinvention alone sometimes failed to overcome wider structural or cultural barriers.

CONCLUSION

An adaptation of the diffusion of innovations model was an effective analytical tool for retrospectively explaining high and low-performing practices in a complex intervention research trial.