



Users and Innovation: Personalising Technologies Town Meeting

Users and Innovation Development Model

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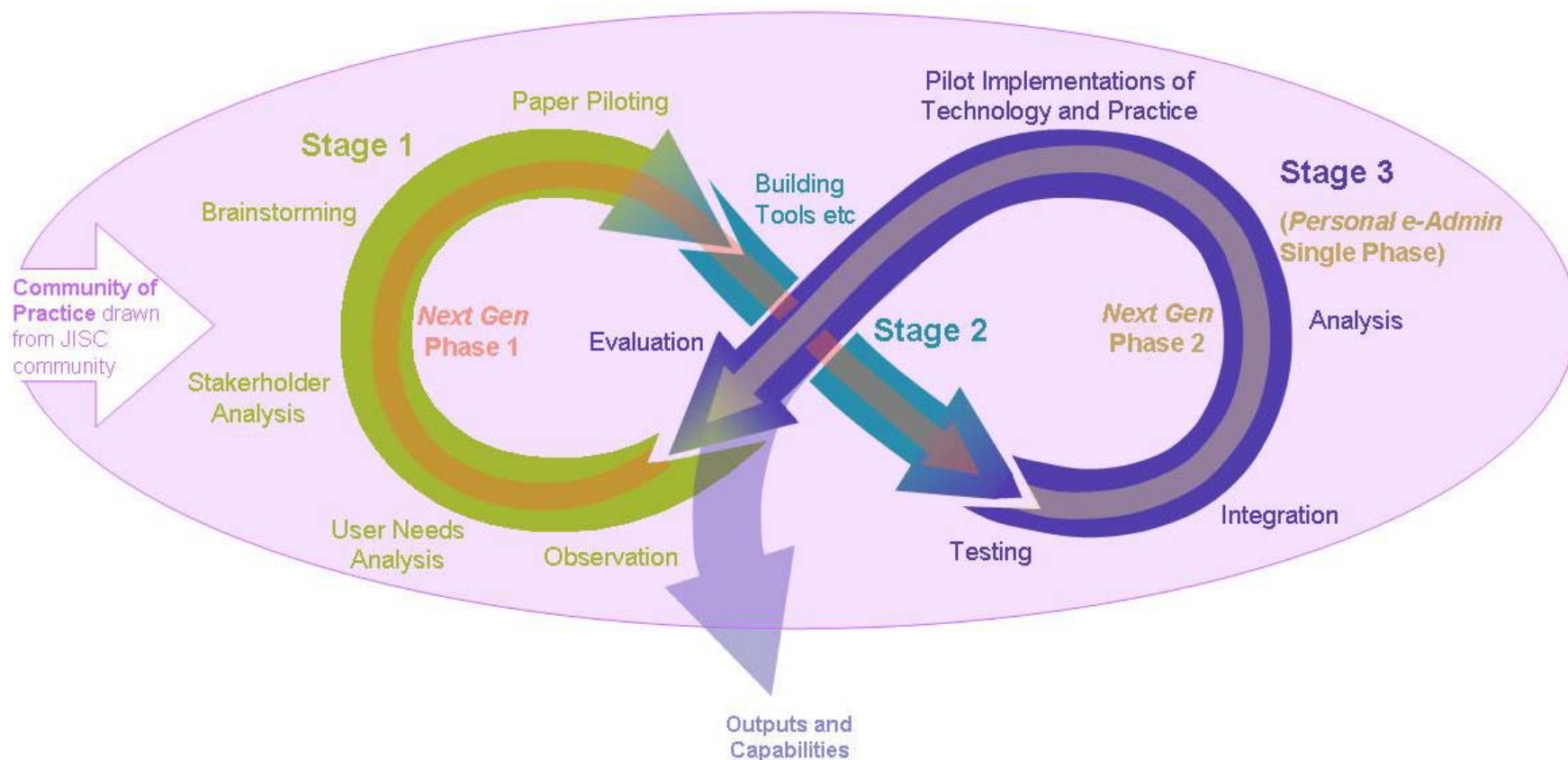
- User involvement has been identified by the Standish Group as the single highest factor in software projects that deliver on time and within budget
- The Users and Innovation programme is piloting new approaches to development cycles through its development model, which is designed to increase the level of user engagement to ensure that the innovative development of technology is integrated with corresponding innovation in practices and processes
- The aim is to ensure that technology is used effectively and efficiently in the support of user and institutional goals

- The community of practice supporting Phase 1 of the Next Generation Technology and Practice activity is based on the Ideas Factory approach developed at the EPSRC, where a broad range of participants are brought together with a facilitator to 'brainstorm' their ideas
- The Users and Innovation model will take this approach and extend it in terms of both reach and richness of engagement, and timeframes, making use of face-to-face opportunities for communication via new technologies and environments
- The model aims to facilitate the development of a community that is able to
 - analyse user needs
 - generate ideas
 - determine gaps in technology provision
 - support rapid and agile development
 - undertake piloting and testing
- ...all supported by a membership made up of peers and clusters of support projects able to give critical feedback within the framework of the programme

Figure-of-Eight Model

- The Users and Innovation development model is based on the experiences of the JISC Virtual Research Environments (VRE) programme and describes design and development principles and good practice that prioritise the needs of users in the implementation of technology and practice
- The proposed approach takes elements from established software development methodologies, particularly Participatory Design, and Rapid Application Development
- The combination of these represents an evolutionary approach to development where users and developers collaborate closely and share common understanding of the application being developed, thus leading to better quality and fitness-for-purpose of the software produced

Figure-of-Eight Model



Activities and Deliverables

- The model iteratively follows a figure-of-eight cycle of development activities, assigned to stages (and mapping onto *phases* for the purpose of the Next Generation strand)
- Broadly these activities move participants through
 - observations of need →
 - generation of solutions (such as brainstorming) →
 - technical development (building) →
 - testing and integration into context →
 - implementation →
 - observation →
- ...and so on, iteratively refining the technology or practice development and implementing through piloting exercises

Activities and Deliverables

Phase
1 2

Stage
1 2 3

Phase 1 2	Stage 1 2 3	Activity	Deliverable
		<p>Observation</p> <p>Identification of issues through a variety of quantitative and qualitative techniques</p>	<p>Documentation relating to the methodologies employed and results obtained</p>
		<p>User Needs Analysis</p> <p>Identification of needs, definition of problem spaces, and surfacing of issues through direct consultation with users</p>	<p>A rationale of the range of users engaged with, the analysis performed, its results and the conclusions drawn</p>
		<p>Stakeholder Analysis</p> <p>A wider approach to the identification of problem spaces and issues, looking at external pressures that may already be coming to bear on users or, through the application of scenario planning, identifying future issues and potential extensions to user needs</p>	<p>Evidence of stakeholder analysis (examples may include scenarios developed as a result of scenario planning workshops, etc)</p>
		<p>Brainstorming</p> <p>Generation of ideas that may provide solutions to issues and problems surfaced during the earlier activities</p>	<p>Suggested solutions collated into an <i>ideas bank</i> that may be applicable to a range of issues or problem spaces identified during the earlier activities</p>

Activities and Deliverables

Phase
1 2

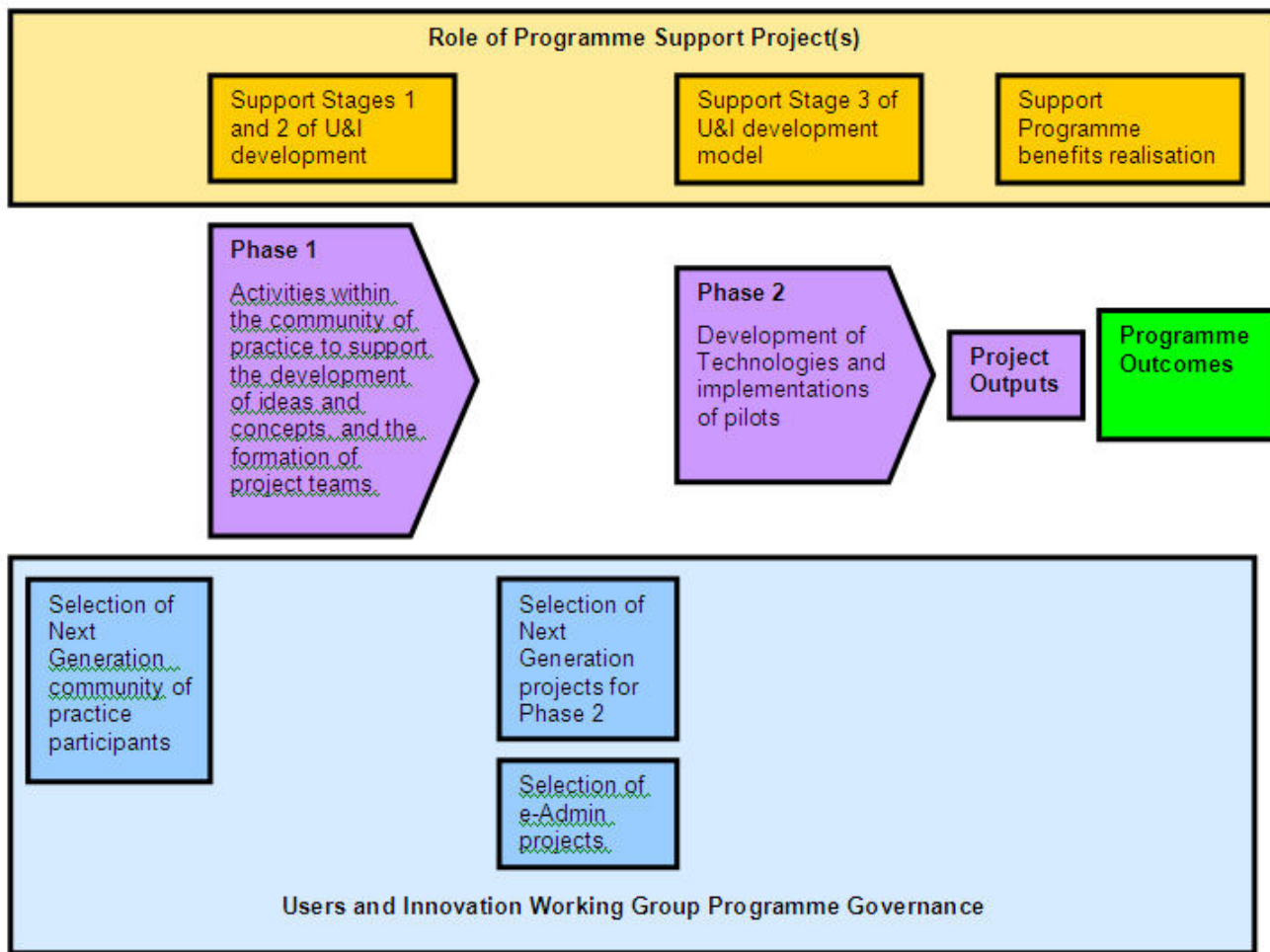
Stage
1 2 3

Phase 1 2	Stage 1 2 3	Activity	Deliverable
		<p>Paper piloting</p> <p>Testing a variety of ideas to determine their validity before committing to any particular technological solution, and before starting building for pilot solutions.</p> <p>During this part of the cycle the team may perform further observation and user needs analysis before returning to more paper piloting</p>	<p>Demonstration of how the concept will be applied and the outputs and outcomes expected from the application of a full technical build and test</p>
		<p>Building</p> <p>Gap analysis should show where the development of new software is required, and where existing tools and platforms can be modified to suit</p>	<p>Project plan indicating build methodologies, regular reports, progress reports, regular software releases</p>
		<p>Testing</p> <p>Testing the built solution against criteria. These may include standards and issues identified during earlier stages, such as user needs analysis</p>	<p>Evidence of testing against agreed criteria</p>

Activities and Deliverables

Phase		Stage			Activity	Deliverable
1	2	1	2	3		
					<p>Integration</p> <p>Once the system has been tested it must be deployed in context</p>	Documentation supporting the integration of the technical solution, and the identification of interoperability and other issues
					<p>Analysis</p> <p>Does the product still function in context in the way in which it was designed? Are there further adaptations to be made for contextual integration?</p>	Beta testing report within the context of deployment. Recommendations for adaptations. Identification of problems which could be addressed through further iteration around stages of the development model
					<p>Implementation of technology and practice</p> <p>Using the product with users. Implementing the technology or practice in the context for which it was designed. Deployment with users</p>	Documentation for users and developers
					<p>Evaluation</p> <p>Evaluating the effectiveness of the technology or practice <i>in situ</i> and moving onto making more observations. Repeating cycles if necessary</p>	Process (cycle) evaluation report. Evaluation of technology or practice

Phases and Stages of the Model



	December 2006	March 2007	September 2007	October 2007
Phase 1		Next Generation community of practice activity commences		
Gateway	Personal e-Admin selection of projects		Next Generation selection of projects	
Phase 2		Personal e-Admin projects commence		Next Generation projects commence

- Phase 1 is a six-month facilitated exploration of project ideas and paper piloting to surface and validate real user needs, identify technology gaps, develop implementation project bids, and form associations and consortia
- This will be delivered through a community of practice, assisted by support projects, to produce the deliverables outlined earlier
- Around June 2007 an open call will be issued, inviting community members and other potential bidders to submit proposals for Phase 2 implementation projects(which will commence in October 2007 and end by March 2009 at the latest.
- Evaluation of proposals for Phase 2 funding will be set against criteria aligned to the Users and Innovation development model and all bids will be expected to demonstrate evidence to support successful completion of the model activities outlined earlier

- Given the more mature nature of the e-Admin space, projects under the Personal e-Admin strand will be expected to start at the second phase of the model
- Bidders are strongly encouraged to supply evidence to demonstrate that they have successfully completed the activities outlined under Phase 1, and are able to supply equivalent deliverables.
- During Phase 2, both the Next Generation and the Personal e-Administration strands of the programme will be engaged in the development and implementation of technologies and practices as described in their proposals

Stage 1 - The User Engagement Cycle

- A broad range of issues are identified and ideas generated to alleviate them
- This stage should lead to
 - greater understanding of what the needs of users are
 - generation of ideas based on observation of practice and technology
 - rapid analysis of ideas through paper piloting

Stage 2 – The Transition and Decision Stage

- During further paper piloting and small-scale building it may be decided that the user engagement cycle is repeated and more ideas are generated before moving into paper piloting again, otherwise, if paper piloting is satisfactory, move on to stage three.

Stage 3 - The Technical Development Cycle

- Where solutions are built and tested
- Technical development should be guided by the user engagement cycle to ensure that the technical solution meets the requirements of the target audience
- Users and stakeholders should continue to be involved in the Integration and Analysis stages.
- Solutions may be built using existing tools and technologies from a range of sources, including other JISC programmes and services.
- New tools and functionality should be developed in cases where significant gaps have been identified and no existing open source tools or services exist
- To suit a rapid style of development, projects should strive for short releases (e.g. every 8-12 weeks)

Further Cycles of the Model

- The development model can be represented as operating over three cycles, providing varying degrees of user and stakeholder engagement, and extending over varying timeframes, according to the level of support and funding available



Further Cycles of the Model

- **The inner cycle (brown)**
 - represents the development cycle that an institution's small development team may typically undertake without access to a wider community to assist them in their user engagement and validation activities
 - reflects limited time and resource availability for the development of technology and its implementation in practice
- **The middle cycle (blue)**
 - represents the Users and Innovation programme supported cycle of development
 - reflects increased allocation of time and resources, and expertise drawn from the community of practice and through the support projects
 - covers a wider range of richer engagement activities (as denoted by the circles within the 'figure-of-eight' loops, mapping onto the activities earlier figure-of-eight diagram)
- **The outer cycle (green)**
 - represents the interactions that could occur in addition to the User and Innovation programme
 - shows relationships that may be formed and strengthened with interested parties representing industry, international partners and other wider stakeholders that may benefit from the outputs of the development process

- It is anticipated that a large number of institutions should be represented in the community of practice
- Support projects will be expected to assist in areas such as user needs analysis, paper piloting and evaluation of the results in order to help the community of practice identify and articulate issues, problem spaces and gaps in technology provision based on real user needs

- A community of practice consisting of individuals and/or teams from institutions to engage in early stage development activity
- Members will be expected to contribute:
 - expert knowledge about problem spaces; and/or
 - innovative ideas on how to apply next generation technologies and practice; and/or
 - institutional settings, test users and support resources that can be made available in order to demonstrate technological solutions in context.
- Participant teams can choose to work together with other teams, or work separately – it is not the intention that the community will operate as a whole
- Members will be expected to share their results and engage with other teams at timely points in the development cycle to help pilot their ideas
- New collaborations of teams may form that may choose to form a consortium when bidding for implementation funding
- The community of practice will continue throughout the model's second phase to assist in further iterations through the development model cycles and provide valuable feedback at appropriate times
- All original members will be encouraged to remain engaged.
- Successful projects under the Personal e-Admin strand will be expected to participate fully in relevant community of practice activities