D-J. TSAI (Convener). ***Empowering tribal elders in the Jin-yue tribe through living lab methodologies.*** *Gerontechnology 2014;13(2):149;* doi:10.4017/gt.2014.13.02.047.00 **Participants** D-J. Tsai (Taiwan), T-P. Yu (Taiwan), T-R. Hsu (Taiwan), J-Y. Chen (Taiwan), S-D. Lee (Taiwan) **Issue** This project is mainly focused on the Jin-yue tribe in Nan-ao Township, a small tribe of about six hundred people who live in a remote mountain landscape. Over the last decade, through the combined efforts of the Jin-yue Tribal Community Development Association and their university partners, we have recovered and preserved traditional Jin-yue cultural skills. However, there has been no significant collective effort dedicated to health rehabilitation or health promotion in the Nan-ao Township. We are establishing an experimental field that provides smart technology to assist the indigenous elderly in this tribe. **Content** Even though various Living Labs have been implemented in Europe, the traditional research approach remains dominant at different stages of product development or service innovation, rather than actually including users in a co-creator approach[1]. Still, there have been promising efforts to bring Living Lab methodologies closer to the ideal of user innovation[2,3]. Some researchers have conceived Living Labs as an experimental environment aimed at shaping technology for real-life contexts and have suggested that it is especially well suited to ICT innovation for rural areas or for the elderly[4]. Key factors in designing a living lab include the question of how to achieve a sufficient degree of cultural competence in designing projects that might empower users/consumers/citizens[5]. This project establishes an experimental field that provides technology to assist the indigenous elderly. **Structure** There will be 4 oral presentations followed by a panel discussion. Presentations include the following specific projects: (i) Participatory biomedical approach with partnership building; (ii) Putting in place an IT platform for healthcare management; (iii) Integrating medical devices for homecare into existing eldercare services; (iv) Situating communication devices in tribal communities to enhance convenience in daily life as a way of facilitating tribal community building. **Conclusion** Our research team has transformed an indigenous tribe into 'an experimentation environment where technology helps in real-life contexts'. This platform can serve as a foundation for innovating Gerontechnology by all stake holders in this indigenous tribe. The community thereby becomes a basic unit in developing self-sustained business and in distributing neighborhood health information. Such neighborhoods turn out to be both mobilization units and Living Labs for gathering data on local culture and eco-region planning.

References

1. Mulder I, Velthausz D, Kriens, M. European Living Labs - a new approach for human centric regional innovation. Berlin: Wissenschaftlicher Verlag; 2008; pp 31-38
2. Choenni R, Waart P, Haan G de. Embedding Human Values into Information System Engineering Methodologies. Proceedings of ECIME 2011, 5th European Conference On Information Management and Evaluation; 2011; pp 101-108
3. Sleeswijk VF, Stappers PJ, Lugt R van der, Sanders EB. CoDesign: International Journal of CoCreation in Design and Arts 2005;1(2):119-149; doi:10.1080/15710880500135987
4. Christiane JT, Winthereik L, Malmborg TB. Proceedings of Human-Computer Interaction 2009; pp 174-183; doi:10.1007/978-3-642-02707-9_19
5. Tsai DJ. Promoting Social Recovery After Catastrophe with Smart Technology Living Labs-A Service Learning Project for Remote Tribal Communities in Taiwan. 4th Bi-Annual International Conference on Aceh and Indian Ocean Studies(ICAIOS); 2013

Keywords: smart technology, user innovation, participatory approach, the indigenous elderly
Address: Taipei Medical University, Taipei, Taiwan; E: dj.tsai@msa.hinet.net

D-J. TSAI, Y CHEN, Y-C. CHEN, S-D. LEE. ***Participatory biomedical approach with partnership building.*** *Gerontechnology 2014;13(2):149-150;* doi:10.4017/gt.2014.13.02.121.00 **Purpose** The objective of this project is to establish a platform for developing smart technology using the Living Labs approach in tribal areas of Taiwan in order to empower high mountain indigenous peoples and ameliorate their marginal position in society. Living Labs are a widely adopted concept for participatory design aimed at 'sensing, prototyping, validating, and refining complex solutions in multiple and evolving real-life contexts'[1]. Starting from William Mitchell's concept of participatory methodology for researching users' real living environments with the goal of innovating services, products, or applications, this action research employs a Liv-

ing Labs methodology to design services, products, or applications for users' real environments in tribal areas[2,3]. We also want to explore whether or not the concept of user innovation offers an approach to bridging tribal and professional communities and to promoting community health in tribal areas. **Method** We are establishing an experimental field that provides smart technology to assist the elderly in an indigenous township through cooperation between a regional hospital, the county health bureau, a leading tele-care company, the health care device industry, tribal leaders, and tribal networks for promoting community health. The university-community partnership coordinates the project, which is aimed at reducing health gaps in this region[4]. The project also incorporates service learning as part of a formal curriculum designed for medical and premedical students; students work with the indigenous community to apply the concept of collaborative design in the development of a process, product, marketing model, or business model[5]. **Results & Discussion** The concept of user innovation provides a feasible approach to building bridges between tribal and professional communities and to promoting community health in tribal areas. After cultivating sufficient familiarity with health-related information technology and establishing a partnership between the research team and community residents, we have shown that an indigenous tribe can function as an experimentation environment for shaping technology in real-life contexts. This participatory approach to professional practice will help build a learning environment that makes minorities an inseparable part of designing new business models or business plans, with an eye toward greater justice in the future.

References

1. Ballon P, Pierson J, Delaere S. Open Innovation Platforms for Broadband Services: Benchmarking European Practices. Proceedings of the 16th European Regional Conference by the International Telecommunications Society (ITS); 2005
2. Mulder I, Velthausz D, Kriens M. Living Methodologies: Understanding the Dynamics of Innovation. In: Schumacher J, Niitano V-P, editors. European Living Labs – a new approach for human centric regional innovation. Berlin: Wissenschaftlicher Verlag; 2008; pp 31-38
3. Guzman JG, Schaffers H, Bilicki V, Merz C, Valenzuela M. Living Labs Fostering Open Innovation and Rural Development: Methodology and Results. Proceedings of the 14th International Conference on Concurrent Enterprising (ICE); 2008
4. Chou JY, Chiu CH, Lai E, Tsai D, Tzeng CR. Medical Teacher 2012; 34(3):187-191; doi:10.3109/0142159X.2012.652238
5. Tsai, DJ. Kaohsiung Journal of Medical Sciences 2008;24(7):373-379; doi: 10.1016/S1607-551X(08)70135-9

Keywords: communication & governance, action research, university-community partnership
Address: Taipei Medical University, Taipei, Taiwan; *E*: dj.tsai@msa.hinet.net

T-R. HSU, D-J. TSAI, L-C. CHANG, Y-C. CHEN, J-Y. CHEN. ***Putting in place an IT platform for healthcare management.*** *Gerontechnology 2014;13(2):150-151; d*oi:10.4017/gt.2014.13.02.124.00 **Purpose** Living Labs are a well established participatory approach to designing products and services that have been proven effective for promoting elderly's use of ICT devices in rural areas. They can also be used for developing ICT device designs tailored to the needs of specific populations[1-3]. Our project uses the concept of Living Labs to create a systemic and participatory approach to providing health care and strengthening community in tribal areas. **Method** We have recruited volunteers to experience the ICT project and provide feedback for ongoing product design in users' homes[4]. Moreover, we established a Living Labs facility by working with community leaders to mobilize neighborhood networks and bring prototype products to residents' lives, gaining partnerships in the process. These products measure blood sugar, blood pressure, and vital signs in order to test, monitor elders' needs. To further facilitate their health promotion activities, equipment such as chest pull, butterfly, barbell, band grip, treadmill, stepper, and upright stationary bike are provided in the community activity center. A training-trainers approach has been adopted for the leaders and senior volunteers of the Tribal Development Association. Beginning with tele-care technology to support health promotion and 'aging in place', neighborhood residents have been willing to take part in program/product design or feedback. Accordingly, we implemented a mutual assistance health promotion database in the community. **Results & Discussion** The research team and the

tribal association developed a user platform that linked social activities with health promotion[5]. An e-learning platform linked social networking, detailed oral history data archives, and health promotion/rehabilitation activities. The tribe now is not only regularly participating in the health promotion activities twice a week, but also actively incorporates such activities into their major cultural events. Mutual supportive health monitoring and promotion activities become inseparable parts in community events. In their well-established regular oral history taking project, those health promotion activities become part of their life narratives as well as new identities. Community-based systemic and sustainable health data collection was organized through health-related activities coordinated by the research team and the association leaders. These experiences are detailed in their oral history collections and serve as an important foundation to facilitate the development of the Living Lab. We thus pursued a solution for the innovation platform. Separation between the cultural domain and the health domain seems inevitable, although the tribal association revealed interpersonal links between the two types of activities.

References

1. Schaffers H, Seija K. Living labs-An open innovation concept fostering rural development. Asia-Pacific Tech Monitor 2007 (September/October); www.techmonitor.net/tm/images/e/e4/07sep_oct_sf3.pdf; retrieved May 13, 2014
2. Guzman JG, Schaffers H, Bilicki V, Merz C, ValenzuelaLiving M. Labs Fostering Open Innovation and Rural Development: Methodology and Results. Proceedings of the 14th International Conference on Concurrent Enterprising (ICE); 2008
3. Christiane JT, Winthereik L, Malmborg TB. Proceedings of Human-Computer Interaction 2009; pp 174-183, doi:10.1007/978-3-642-02707-9_19
4. Choenni R, Waart P, Haan G de. Embedding Human Values into Information System Engineering Methodologies. Proceedings of ECIME 2011, 5th European Conference On Information Management and Evaluation; 2011; pp 101-108
5. Tsai DJ. Promoting Social Recovery After Catastrophe with Smart Technology Living Labs-A Service Learning Project for Remote Tribal Communities in Taiwan. 4th Bi-Annual International Conference on Aceh and Indian Ocean Studies (ICAIOS); 2013

Keywords: communication & governance, rural area, tele-care, database, total solution
Address: Chung Hua University, Hsinchu, Taiwan; E: tuhsu@chu.edu.tw

J-Y. CHEN, D-J. TSAI, Y. CHEN, S-D. LEE, H-T. WAN. ***Designing a participatory ethical governance framework.*** *Gerontechnology 2014;13(2):151-152;* doi:10.4017/gt.2014.13.02.127.00

Purpose This project aimed to instill a sense of confidence in elderly technology users by integrating medical devices for homecare into existing eldercare services in community. The research team has pursued a consensus building in tribal areas through the Jin-yue Community Development Association IJYCDA) and has participated in negotiations to gain support from the Nan-Ao Health Station since April 2012[1]. However, a lack of motivation among residents for turning the community building into a community health building, along with limited confidence in association members, have been key factors impeding the establishment of further community health services for the elderly. The living lab concept, with its appreciation of user innovation, can serve as a tool for mediating between interest groups and stakeholders as we work with the IJYCDA to shape a participatory ethical governance framework for mobilizing the elderly and for enhancing mutual supportive networks in the community[2]. **Methods** With support from the research team and consent from community residents, the JYCDA drew up a contract for promoting community health. The contract identified certain association members as health surrogates[3]. This contract serves as a legal and ethical foundation for the Jin-yue Community Development Association to work with all participants, managing both individual and collective health data. After public consultation meetings, residents were willing to cooperate with the research team to develop a pilot project, which set up a Living Lab for innovation in community health monitoring and made use of available health data. A participatory ethical governance platform for benefits sharing was established in this manner. **Results & Discussion** We encourage individual healthcare device users to join in community health building efforts focused especially on the elderly, an activity supported by the tribal association. The project creates new community building momentum through a partnership between the research team and the tribal association. The partnership laid out a blueprint for health

maintenance and promotion[4]. We reached a consensus that all health devices provided for Living Lab research would be free for tribal people and collectively owned by the association. A web-based flow chart for introducing new devices or programs into the community was approved. On this basis, a community-based collective innovation platform was established for further product design or business plan development[5]. We then initiated a web-based community-oriented health appointment management system to facilitate elderly home care device users to be part of a mutually supportive health care network, supervised and supported by the Nan-Ao Health Station.

References

1. Khanlou N, Peter E. Social Science & Medicine 2005; 60(10):2333-2340; doi:10.1016/j.socscimed.2004.10.004
2. Tsai DJ. Promoting Social Recovery After Catastrophe with Smart Technology Living Labs-A Service Learning Project for Remote Tribal Communities in Taiwan. 4th Bi-Annual International Conference on Aceh and Indian Ocean Studies(ICAIOS), Lhokseumawe, Aceh, Indonesia; 2013
3. Flicker S, Travers R, Guta A, McDonald S, Meagher A. Journal of Urban Health 2007;84(4):478-493; doi:10.1007/s11524-007-9165-7
4. Guzman JG, Schaffers H, Bilicki V, Merz C, Valenzuela M. Living Labs Fostering Open Innovation and Rural Development: Methodology and Results. Proceedings of the 14th International Conference on Concurrent Enterprising (ICE); 2008
5. Choenni R, Waart P, Haan G de. Embedding Human Values into Information System Engineering Methodologies. Proceedings of ECIME 2011, 5th European Conference On Information Management and Evaluation; 2011; pp101-108

Keywords: communication & governance, ethical governance framework, benefit-sharing
Address: Hsuan Chuang University, Hsinchu, Taiwan; *E*: pio362@yahoo.com.tw

S-D. LEE, D-J. TSAI, Y-C. CHEN, C-Y. HSU. ***Situating communication devices in tribal communities to enhance convenience in daily life by facilitating tribal community building.*** *Gerontechnology 2014;13(2):152-153;* doi:10.4017/gt.2014.13.02.157.00 **Purpose** The Living Lab concept of a collaborative setup for users to shape technology and its applications can generate new understandings of future business opportunities[1]. However, implementing Living Lab concepts requires a very open approach that sometimes contradicts a company's specific business model. Our project uses the concept of Living Labs to create a systematic and participatory approach to providing health care and strengthening community ties in tribal areas. This is, in fact, a regional planning project. Its open innovation platform incorporates three core functions: putting an IT platform for healthcare management in place, providing medical devices for home care through existing eldercare services, and situating communication devices to make daily life more convenient and facilitate tribal community building[2-4]. **Method** We are establishing an experimental field for smart technologies designed to assist indigenous elderly in Nan-ao Township in cooperation with Saint Mary's Hospital Luodong, the Health Bureau of Yilan County, leading tele-care companies, the health care device industry, tribal leaders and community health networks. A university-based community partnership serves as a mediator, reducing health gaps in the region. Empowerment and user-driven innovation are key concepts to develop new service and business models. Research team members, working with tribal device users, design ICT products through a mutually supportive, participatory approach. At the same time, an innovative, foundational platform for promoting community health will be established by all stake holders in this indigenous tribe[5]. Eight community leaders and around 30 residents have taken part in this project. **Results & Discussion** We designed a Living Lab with an e-learning platform to link social networking activity, detailed oral history data archives, and health promotion/rehabilitation activities with health data collections. The data collections were organized through health-related activities, coordinated mainly by the research team and the tribal association leaders. In this system, the community becomes a basic unit for developing self-sustained business and distributing neighborhood health information. Such neighborhoods may turn out to be both mobilization units and Living Labs for gathering data on local culture and eco-region planning.

References
1. Mulder I, Velthausz D, Kriens, M. European Living Labs - a new approach for human centric regional innovation. Berlin: Wissenschaftlicher; 2008; pp 31-38
2. Guzman JG, Schaffers H, Bilicki V, Merz C, Valenzuela M. Living Labs Fostering Open Innovation and Rural Development: Methodology and Results. Proceedings of the 14th International Conference on Concurrent Enterprising (ICE); 2008
3. Meurer LN, Young SA, Meurer JR, Johnson SL, Gilbert IA, Diehr S. American Journal of Preventive Medicine 2011;41(4):S228-S236; doi:10.1016/j.amepre.2011.06.005
4. Oost E van, Verhaegh S, Oudshoorn N. Science Technology and Human Values 2008;34(2):182-205; doi:10.1177/0162243907311556
5. Schuurman D, Marez L de. User-Centered Innovation: Towards a Conceptual Integration of Lead Users and Living Labs. Proceedings of COST298-conference The Good, The Bad and The Challenging; 2009

Keywords: communication & governance, participatory approach, open innovation platform
Address: National Taipei University of Nursing & Health Sciences, Taipei, Taiwan
E: shyhdye@ntunhs.edu.tw