TTC ESTABLISHES THE INDUSTRY'S FIRST LIVING LAB

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LA Tech's TTC continues to push the trenchless world towards the future, establishing the industry's first Living Lab.

While the definition of a Living Lab may vary depending on specific application, the concept is fairly consistent with being a bridge in what is referred to as transferring research into practice (TRIP). The action space does not include the fundamental research; the Living Lab becomes engaged after the proof-of-concept has been validated.

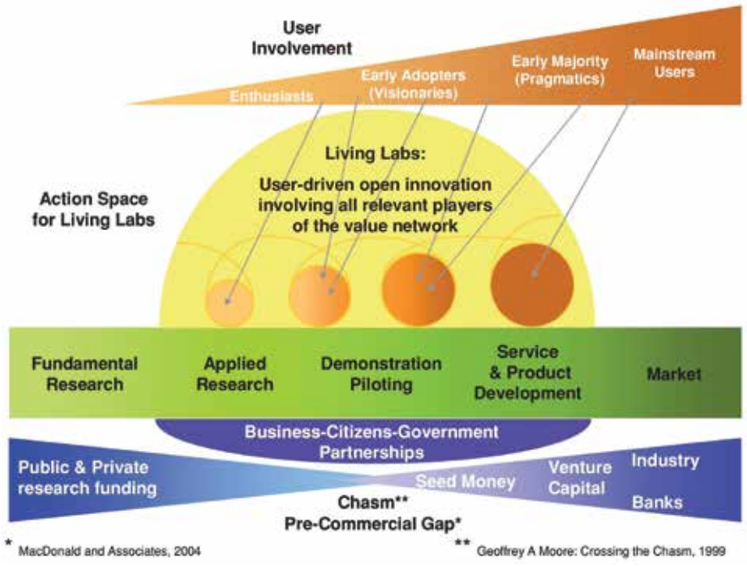
The lab will provide three major components of the TRIP process. These components consist of:

- providing any required applied research based on field experience
- conducting demonstration projects to pilot and validate claims of the new technology
- developing and finalising the required services and products to ensure that the technology is market ready.

While the Living Lab program does not officially participate in the commercialisation efforts, often the TRIP team can provide continuous support with future innovations and improvements. This is a natural outgrowth of using a user-driven, open innovation process that involves all relevant players and stakeholders of the value network.

Moving new technical solutions from the research stage to being accepted by mainstream users and establishing a sustainable commercial business is often a huge challenge and often the TRIP challenge is much greater than the research and proof-of-concept stage. TRIP involves technical challenges as well as overcoming numerous barriers of entry.

The TRIP team must be skilled at working with an evolving user base. Initially the potential users may be classified as enthusiasts; they can see the potential benefits of the new technology. Eventually, some early adopters will emerge.



The concept model for validation using a Living Lab.

These people are visionaries because they are willing to evaluate the benefits, take the risk and conduct pilot projects. Eventually, more champions will become the early majority because they are pragmatics. These are the industry leaders, which then generate the mainstream user base.

The Louisiana Tech University (LA Tech) Trenchless Technology Center (TTC) was established about 30 years ago and has been involved with every major trenchless technology industry segment in conducting the fundamental research and every aspect of the TRIP process. This process has now been formalised into the first Living Lab program for the trenchless technology industry.

TTC's Living Lab is a partnership with the City of Ruston Department of Public Works. It clearly establishes how TTC continues to lead the way to keep advancing the science and practice of trenchless technology to meet the future challenges of underground infrastructure through research, education and technology transfer. The Living Lab program was initiated in 2018 with the demonstration of using drone technology for pipeline condition assessment.

The objective was to evaluate the flyability and imaging data acquisition capabilities of the Elios drone equipped with CCTV and thermo imaging cameras in 18 inch (458 mm), 24 inch (610 mm) and 72 inch (1,829 mm) diameter pipelines.

While there was a short notice for the drone pipeline condition assessment demonstration, TTC was excited to have representatives in attendance from CUES; HDR; Atkins; CDM Smith; Hunt, Guillot & Associates; KSA Engineering; FTN Associates; and Deforest Engineering Consultants.

A: A drone used in the first pipeline condition assessment demonstration.
B: A storm drain line where the pipeline condition assessment demonstration took place.

At the time of publication, a major milestone was planned to occur on 14–15 February 2019 at TTC in Ruston. This program is a partnership with Easy-Sight, which is a developer and manufacturer of pipeline condition assessment equipment and software based in Wuhan, China.

Easy-Sight has a strong working relationship with China University of Geosciences which TTC has cooperated with for more than 10 years, recently culminating in a large Chinese delegation visiting LA Tech. In July 2015, Easy-Sight successfully hit the capital market of China and was listed on the National Equities Exchange and Quotations.

The company has passed the management system certifications of ISO 9001, ISO 14001, OHSA 18001 and related products have obtained the Federal Communications Commission Certification, European Union CE certification and National Certification for explosion-proof products. It has branches and distribution offices in Beijing, Shanghai, Shandong, Anhui, Jiangsu, Guangdong, Fujian and Guangxi.

Easy-Sight has developed a 3D scanning technology for the inspection of manholes and sewer pipelines. It has entered into an agreement with TTC to validate the claims of this technology on 14 February through experiments and testing at TTC's National Trenchless Technology Research Facility. On 15 February, TTC and Easy-Sight will conduct a one-day seminar and demonstration.

Dr Tom Iseley will open the seminar with a state-of-development address of the TTC Underground Infrastructure Campus (UIC). He will explain how unique and fortunate TTC is to have a president of the university – Dr Les Guice – who is a civil engineer and worked hard beginning in 1988 when he hired Dr Iseley to establish TTC.

Dr Guice is pleased to see how industry leaders have rapidly pulled together to provide financial support for the next addition to the TTC UIC. This addition will be dedicated to enhancing field training with the Barbera Underground Infrastructure Research and Training (BUIRT) facility.

At the inaugural TTC Lifetime Achievement Award Banquet conducted on 13 November 2018, in conjunction with the third Auger Boring School, Dr Iseley said, "The BUIRT facility allows the trenchless technology industry to honour the past and commit to meeting future industry demands."

Certainly, workforce development and professional development are critical components of meeting future needs. The industry can find the best technical solutions in the world, but without a trained and skilled workforce building projects, designed by trained and knowledgeable professional, we will not be able achieve meeting the challenges of tomorrow.

Dr Iseley is Chair of the fundraising initiatives to get the investment needed to construct a state-of-the-art field training facility, BUIRT, which can be used year-round for research and training. The BUIRT will facilitate the interaction of underground and graduate students with industry representatives from around the world, who will use the facility as they move through the TRIP process and make use of TTC resources, including the Living Lab program.

So far, TTC has achieved sponsorships for the BUIRT Facility totalling US$200,000 of its US$300,000 goal, which includes sponsors from the US, China, Japan, and South America; all sponsors will be recognised on the entrance monument of this world-class research and training facility. There are still diamond, platinum, gold, silver and sponsor level sponsorship opportunities available, ranging from US$500 to US$100,000 and above.

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