

5th Innovation Multipliers Workshop

Workshop 2 – Business Plan Key Questions

Koli-Klere Water Testing



Koli-Klere was originally a spin-out from one of Turkey's leading technical universities. It is based on the PhD work of two biotechnology students who had the idea that if microscopic holes could be accurately produced they could be used to restrict the flow of bacteria, provided that these holes are made smaller than the bacteria themselves. Obviously this could not be used in a production line flow, but could be incorporated into a device which could capture bacteria. Photo-sensors could then be used to detect the bacterial presence in order to trigger a warning or record the event. Alternatively, capturing devices could be incorporated into disposable cartridges which could be retained for later 'off line' analysis.

Using a combination of university and national grants, the two partners went on to found a business based on this concept in 2014. The company is based in a subsidised start-up laboratory unit on a university science park in Istanbul and now employs 6 people including the founders.

Prototypes of the bacteria capturing device have been developed. Such devices could be used to capture organic or non-organic microscopic particles in a variety of fluid mediums, but the two directors have chosen to initially concentrate on bacteria detection in the bottled water industry. Koli-Klere can now make the capturing devices in small quantities along with an instrument which detects the captured bacteria. The most dangerous bacterium in bottled water is e-coli which can cause severe digestion problems and in extreme cases, death. The team decided early on to concentrate on e-coli detection as the most important target.

Conventional water testing involves taking samples and then growing any bacteria in petri dishes under accelerated laboratory conditions. After 5 days the dishes are checked and any bacterial growth is identified by microscope. Based on these results, quarantined batches of bottled water are either released for sale or destroyed. Koli-Klere's new unit allows samples to be taken from production lines and the accompanying detector instrument gives an immediate indication of any problem. This reduces the need to hold quarantine stocks for e-coli checks.

The prototype units are on test with three major bottled water companies. Initial results are promising, but full data are awaited. Based on these (successful) results the company will then scale up the field testing and consider producing and marketing the equipment in volume for national and international markets.