Case Studies:

**Case Study #1: Sproxil**

*Company Overview*
Founded in 2009 Sproxil is one of 5 mobile authentication and track and trace solutions available for pharmaceutical companies and regulators to secure global supply chain networks. The company began with the goal of “using mobile phone to empower consumers and combat the multi-billion-dollar counterfeit pharmaceutical market.” The company has since diversified and provides three product solutions building on the original scratch and authenticate technology at point of sale and now offers a supply chain track and trace solution. This change mirrors the market which is becoming more focused on supply chain transparency and consumer empowerment. Sproxil has also built partnerships like its competitors (mPedigree and PharmaSecure) to be a provider for GSI barcodes.

*How it works*
Sproxil utilizes IBM’s cloud technology to provide point-of-sale authentication (*Sproxil Defender*) and supply-chain wide track and trace solutions (*Sproxil Informer*).
- **Sproxil Defender**: Scratch and peel service connected via phone authentication, and the customer can call a hotline if they detect a fake medicine.
- **Sproxil Informer**: Shipments are protected by code detected via a non-phone scanner and at point-of-sale and can use Sproxil defender service.

*Differentiation from other technologies*
Most track and trace mobile solutions struggle to build awareness about the issue of falsified and substandard medicines, and even more so with raising awareness about its own solution. In response to this challenge, Sproxil is the first in the market to provide distributors and consumers incentives and rewards for utilizing its service.

*Current Impact and Reach*
In 2015, Sproxil surpassed 20 million verifications and is expanding, second to the solution PharmaSecure with >500 million verifications. Sproxil’s rapid expansion has been largely due to its focus on emerging markets and partnership with Indian Telecommunications company Bharti Airtel which will offer its mobile authentication services to subscribers in 17 African countries.
Case Study #2: TruTag™

Background
TruTag technologies respond to the changing global supply networks by going beyond product packaging to safeguard the pill itself. Today, digital signatures on medical products for supply chain security are added on packaging or within a product via extensive changes to the manufacturing process. TruTags are applied to tablet coating requiring very minimal manufacturing changes and provide tracking capabilities across the supply and distribution networks.

How it works
TruTag’s authentication technology utilizes optical signatures that are manufactured into microtags without the use of additional markers or additives; these tags can be included in coatings or powders and can be read only via TruTag’s unique optical reader. The product tags can hold information regarding dose, manufacturing plant, manufacturing time, and lot number. The technology is edible, covert, low cost, heat resistant and provides component tracking. TruTag has also launched a portable reader for use in the field and is trying to enter the rapid field detection market for medicine quality detection technologies.

The way forward
TruTag still requires both regulatory and manufacturer buy-in to scale, and shifts significant cost and responsibility for authentication away from the end consumer. Furthermore, reliance on a unique optical reader can also be a challenge for this product to scale. Its unique ability to digitally mark pills without packaging makes this product particularly promising for markets in which pills are diverted and sold individually.
Case Study #3: NABP .pharmacy TLD

Background
Even with significant efforts to combat illicit online pharmacies using website seals, pharmacy verification websites, and rapid email alerts – the online marketplace for medicines remains highly unregulated and populated with illicit or “rogue” sites (i.e. not meeting required standards or accreditation.) Sifting through online web-seals, logos, and search engine results, patients continue to struggle to determine if their online source of medicines in safe. The .pharmacy top-level domain provides greater simplification in this process by only allowing legitimate online pharmacies to register a .pharmacy domain (e.g. www.[yourname].pharmacy) that is approved and monitored by NABP for compliance.

Getting a .pharmacy domain name
An applicant must first apply for approval to register a domain name under the .pharmacy gTLD through NABP, which then reviews the application for compliance to NABP programs and policies. Upon NABP approval, the applicant receives a secure electronic token that can then be submitted to one of NABP’s approved registrars that then registers the domain for the applicant. The company’s compliance with the program is monitored annually. Eligible businesses include pharmacies (including human and veterinary), pharmacy benefit manager companies, school of college of pharmacy, wholesale distributors, manufacturers, educational or advocacy groups, trade associations, regulatory agencies, and Board of pharmacy. Participating in the .pharmacy domain also enables legitimate online pharmacies to be automatically be eligible to advertise on popular search engines Google, Bing, and Yahoo!

The way forward
Most critical to the future success of the .pharmacy will be generating consumer awareness, demonstrating the value of the .pharmacy brand, and generating demand among online pharmacy shoppers for widespread adoption of the .pharmacy domain name. On the supply side, ensuring that a wide variety of pharmacies are registering for the domain and have the requisite medicines available to meet the needs of patients will be crucial. As of January 2017, there were a total of 29 online pharmacies (not including veterinary) registered for one or more .pharmacy domains.