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Guardtime Stock Alert: Solving COVID+ related shortages

The world is seeing shortages of medicines, masks and ventilators, with more shortages and supply chain breakdowns likely to follow. Guardtime Stock Alert is a product that generates advance alerts on supply levels, impending shortages of critical goods without requiring wholesalers, manufacturers or public bodies to share their specific stock information.

Guardtime Stock Alert has been developed specifically for medicines/pharma supply chain but can also work for other essential goods (e.g. protective equipment, ventilators, food, fuel). There is now a 1-2 month window of opportunity to deploy this solution at scale before the second wave of Coronavirus hits. Supply chain visibility can give a region, country or multiple countries confidence in overall stock levels without resorting to hoarding or export restrictions.

A solution to prevent medicines shortages

There is a global chronic problem with medicines shortages.[1] The issue is also gaining political attention.[2] Now, the COVID-19 crisis has put this problem in the headlines.

Medicines agencies' response to this problem has been reactive. Their measures deal with shortages only when they have already occurred, as regulators have very limited insight into medicines supply-chains. **Without such data, the healthcare sector is largely unable to solve this problem to create higher resilience in the next healthcare crisis.**

Among the reasons for medicines shortages, the lack of coordination in the supply chains for finished products is the most severe. The medicines supply chain is very fragmented with thousands of operators that do not, and are not allowed, to speak to each other. In multinational markets (such as the EU), there is also trade, parallel distribution, with its own dynamics including supply quotas from manufacturers. In short, it is a mess.

Guardtime is set to solve this "black box" issue in medicines supply-chain, enabling national regulators to solve the acute crisis and building long-term resilience to critical medicines shortages with more proactive measures than are in place today.

Guardtime is partnering with IQVIA (previously IMS Health; the leading business intelligence provider in pharma) to deploy a solution to monitor inventory levels, on a daily basis, across the entire supply chain to be able to **predict and prevent** medicines shortages.
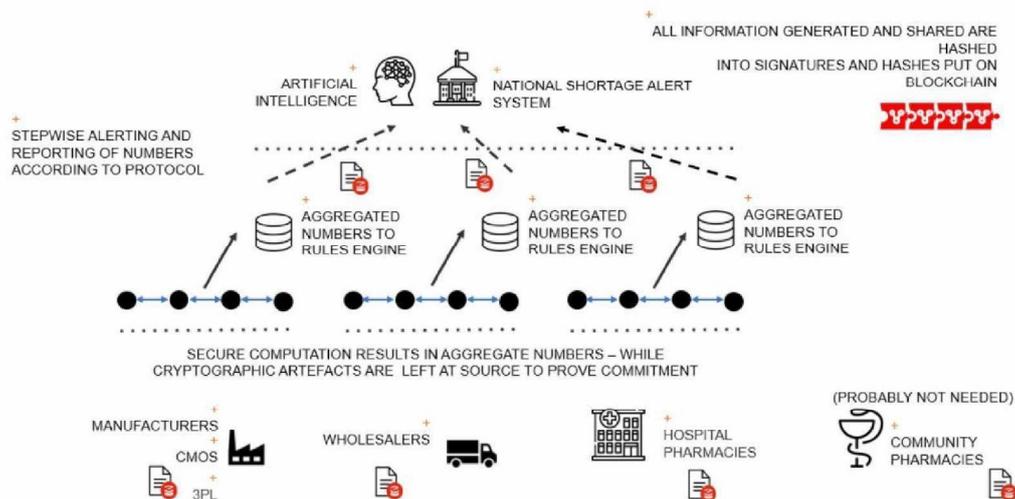
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[1] The EMA (European Medicines Agency) describes the problem and provides some resources here: https://www.ema.europa.eu/en/human-regulatory/post-authorisation/availability-medicines

[2] The issue has also gained higher political attention, e.g. the European Commission lists the supply of affordable medicineas as its first health priority for the next 5 years.

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For each of the supply chain steps – manufacturers, wholesalers, pharmacies – inventory levels for each article (SKU/GTIN) are aggregated. This gives all necessary stakeholders a trusted and real-time overview of total stock levels and supply-chain capacities without revealing any sensitive business information.

Guardtime's technology ensures that inventory data from individual operators are kept confidential (by using a variant of secure multi-party computation), and that input provided at source and action taken by operators are auditable (by using the KSI Blockchain).

The key differentiating feature of Guardtime's solution is the simplicity of governance of such a multi-stakeholder data exchange framework. In contrast to other DLT/blockchain tools, Guardtime's technology does not involve complex governance processes that would create unreasonable overhead or limit the effectiveness of the solution in wider consortiums. This solution remains configurable, massively scalable and highly interoperable even with legacy databases that are used by various partners.

The primary customers will be medicines agencies (national regulators) and those dealing with shortages at hospital pharmacies and pharmacy chains. Secondary customers will be manufacturers wanting to optimize their supply chains (towards just-in-time-delivery) and for distributors to find business opportunities by filling the gaps.

Guardtime's solution is in close-to-market readiness (a pilot in Sweden is beginning April 2020) and can be deployed in production mode in the next few months. In the EU, Guardtime's approach is supported by all the EU-level associations (trade groups) and more informally by the European Commission (DG SANTE) and the EMA. Several national regulators have expressed more explicit support.

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We are currently accelerating our deployment strategy in view of the COVID-19 pandemic. Even if our solution may not be in place to prevent or remedy COVID-19 related shortages in Europe today, it will need to be in place for next winter if the outbreak becomes seasonal (like influenza).

There is a **window of opportunity in the next 1-2 months** to begin deployment at scale of stock alerts to prevent serious shortages and market breakdown from ongoing responses to the coronavirus in the second half of the year. Absent approved antivirals and vaccines, we see how countries are resorting to treating COVID+ with other antivirals (eg HIV and HepC) and antimalarials, which may result in shortages of these drugs very soon. We also see hoarding of regular medicines that will result in shortages. Better understanding of this behavior is important to find remedies and to plan ahead. The momentum to engage necessary stakeholders across Europe and globally in solving this problem is higher than ever.

Other uses

We have also started a conversation with the European Commission and the World Health Organization in Geneva whether to expand the scope, after the Swedish pilot, to also cover non-pharma medical goods – ranging from facial masks, to ventilators, to diagnostics. This space is even more fragmented, but recent events have demonstrated an urgent need for better supply chain visibility. Guardtime and IQVIA are exploring how to make this not only a global project for medicines (pharma) but also for all medical goods.

More broadly, this technology could be used to coordinate cross-border on stocks of a variety of essential goods (food, energy).

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<u>About Guardtime</u>

Guardtime is a European deep-tech company that offers data security and governance applications based on its ground-breaking R&D in hash-linking cryptography, including in the health and life sciences market. Guardtime was founded in 2007 in Estonia and now has offices in Estonia, the Netherlands, Switzerland, the United Kingdom, Singapore and the United States.

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