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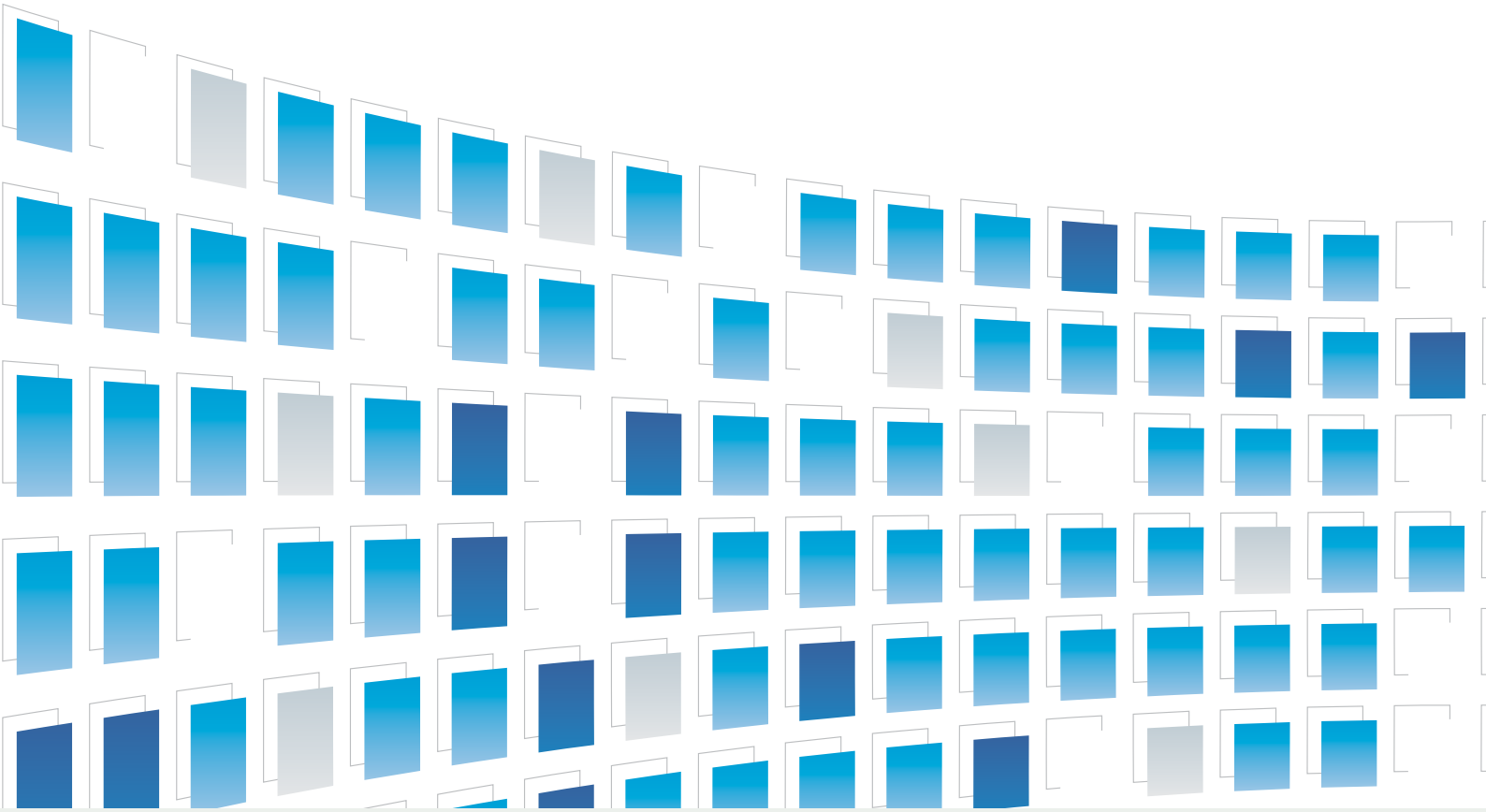

When Matrix enters sterile services

- get ready for Big Data

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Get ready for Big Data

It is not possible to watch the live statistics about google, telling you how many searches are being performed every second, and do not think about what they mean. Every day over 3.5 billion queries are submitted to search the web for information (InternetLiveStats 2015). When you combine this information with data from other platforms, numbers grow to a level most of us are uncomfortable with.

On top of user generated data there is a whole array of machines, both physical and virtual, that generate, process, analyse and store information. There is so much of it that this abundance creates a problem on its own.

The amount of material grows much quicker than our ability to process it in a meaningful way. Big Data is defined as datasets which size is beyond the ability of a typical database software tools to capture, store, manage, and analyse (Manyika et al. 2011).

General problems of how to classify what is true and what is not, how to distinguish between the old and the new, how to differentiate facts from opinions and eventually that what matters from that that does not – are only the outer layer. Beneath lies the realm of technical problems that deals with the formats of data, means of storage, speed of acquisition and processing.

Coincidentally, even this piece is an example of such struggle. The first paragraph was changed several times as various numbers were cited in different sources and as they differ so greatly in time I resorted to the live statistics to be as accurate as I could be…

There are various tools for data analysis that include techniques that span from simple statistics, trend tracking and anomaly spotting to highly complex neural networks and artificial intelligence algorithms that learn and adapt based on the data they process. At this point it very much becomes a science on its own, if not art.

How does that translate into healthcare and specifically how will it affect decontamination sciences?

The scope of Big Data in healthcare is vast – from intelligent patient monitoring systems interacting with both patients and healthcare systems in real time to healthcare facilities management including logistics, human resources, equipment and consumables.

Within sterile services data is already collected from equipment, staff and management. Sterilisers, washer-disinfectors, chemical delivery systems, reverse-osmosis stations and other equipment produce printouts or data logs. These allow individual monitoring of performance and maintenance management. Once plugged into the Internet of Things (Techopedia 2015) they become a part of Big Data available to overarching control systems. By analysing and processing this data through various algorithms it will be possible to help manage instrument throughput, testing and validation processes towards increased efficiency. On top of that, this sea of information becomes available to the industry allowing for new technologies and solutions to emerge to address most urgent problems – i.e. most ineffective systems.

The adoption of benefits will not be easy and straightforward. The first major problem is the shortage of relevant knowledge and skills needed to successfully implement Big Data within the sterile services setting. Management of Big Data is an emerging discipline and it requires unique competences to implement. These competences are not yet widely thought.

Data produced by humans and different equipment comes in various formats and structures – pictures, text, numbers, etc. This data in its raw form is incompatible and cannot be directly compared and processed. Because of the multitude of format, languages and units this task becomes almost impossible to manage, even before we get to the technical problems with processing of large volumes of data. Because of this, organisations like United Nations Economic Commission for Europe (UNECE) works towards harmonisation and unifications of data formats so it becomes comparable with different sets in different circumstances (UNECE 2015).

Industry must also find a way to collaborate with governing bodies to create standards for data formatting, storage and processing that will make the integration of systems and information exchange efficient, easy to access and analyse.

These problems inevitably lead to the cost that sterile services will need to suffer in exchange for getting “wired in” and being a part of the network of the Internet of Things. Big Data is already being created around us and I believe the conclusion is that it is only our ability to innovate that will allow tapping into this vast resource and find ways to justify the cost. I believe that despite all challenges lying ahead engaging with Big Data is worth the effort.

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