

Data-Driven Innovation



By Abed Khooli

Uber, the world's largest taxi company, owns no vehicles. Facebook, the world's most popular media owner, creates no content. Alibaba, the most valuable retailer, has no inventory. And Airbnb, the world's largest accommodation provider, owns no real estate." So what do they own, you may ask? Well, the answer is surprisingly simple: data and analytics.

Many refer to data as the new oil or new soil, and it could be a mixture of both. Data has always been around, but the data landscape has changed profoundly over the past few years. With the abundance of data sources ranging from user behavior (such as browsing habits or comments on social media) to the Internet of Things (sensors and small devices with Internet connection – IoT) and the reduced cost of data storage, computational resources, and communication, the potential of the so-called "big data" has already been realized in various domains, ranging from retail to health and even sports.

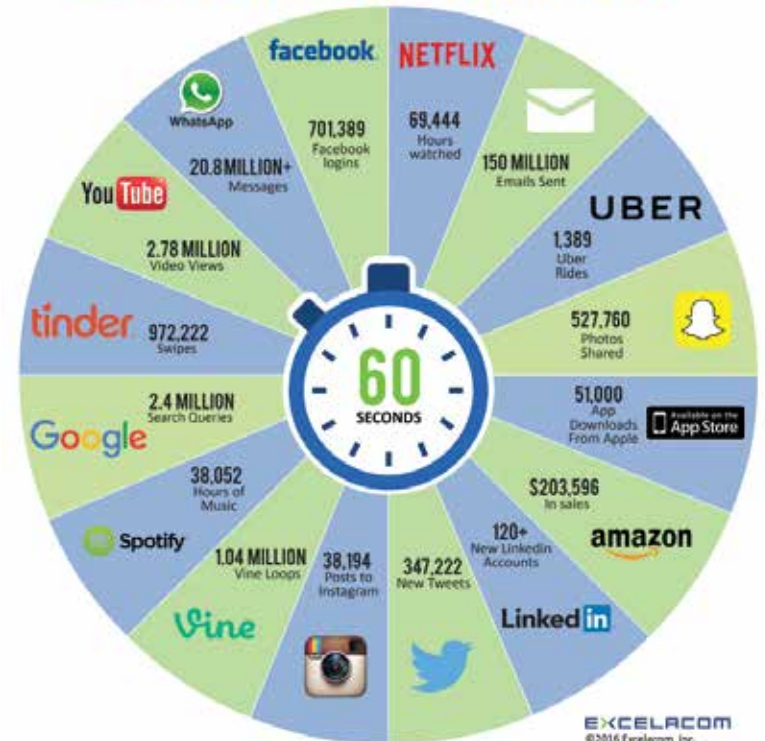
The combination of large amounts of data (in various formats) and advanced technologies enable the use of data analytics and machine-learning approaches in order to derive insights and predictions that could be acted upon to provide value-added services or improve operational efficiency. The process of extracting data products or services (oil) from raw data (sand or soil) is equally sophisticated and involved. It starts with data acquisition (or generation) and passes through some manipulation and exploration steps to both understand the nature and composition of the data, and also to clean, impute, and reformat raw data. Statistical and mathematical methods as well as machine-learning models are used to analyze the data sets and derive insights and predictions. The area that derives insights and predictions from raw data is called data science. It is multi-disciplinary and requires domain knowledge and soft skills in addition to core mathematics, statistics, programming, and data technologies.

By analyzing large amounts of past transactions, for example, it is possible to predict the likelihood of a fraudulent future transaction based on profile and characteristics. Similarly, when you shop online, you get recommendations based on your browsing habits, past purchases, and the shopping habits of people like you. The applications of data science are endless and span major hardware industries, such as driverless cars and drones, and services such as insurance, health, retail, and smart cities. Some of the major successes are seen as disruptive innovations (creation of new markets or business models by using technology to challenge existing structures), although they usually market themselves as shared economy – allowing entities with

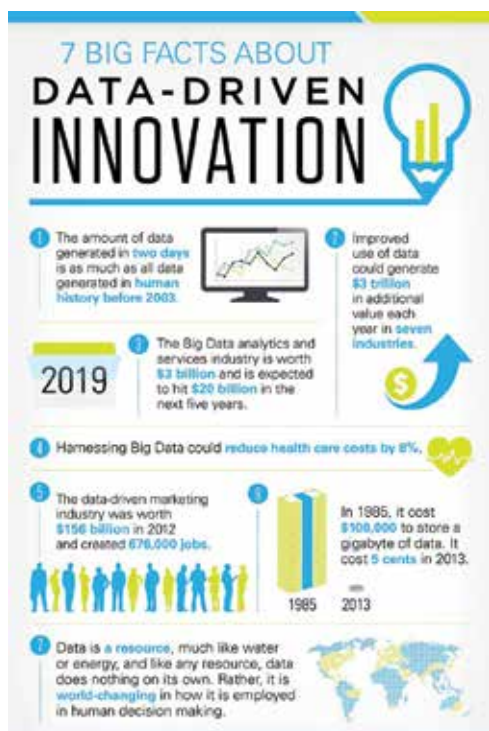
Uber, the world's largest taxi company, valued at over US\$ 60 billion, owns no taxis, and Airbnb, the world's largest accommodation provider, worth around US\$ 25 billion, owns no real estate. Both are powered by data.

minimal resources to take advantage of platform, network, and technical infrastructure. Many start-ups and entrepreneurs ("datapreneurs") are trying to replicate success stories in different ways and with various success levels.

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In Palestine, there are plenty of opportunities for data monetization at the various points in the data-value cycle, starting with data as a service and ending with data-enabled products and services. One example is data collection and manipulation – especially since open datasets are uncommon in our region and a lot of data remains to be collected and processed in the absence of adequate resources and smart techniques. Also, because data literacy and awareness are still taking baby steps here, capacity building is another option, with data-driven journalism being a prime example (data-based storytelling and visualization). Rather than carbon-copy outside models, context-sensitive initiatives and innovations with local demand and support are more likely to succeed.

As with all other entrepreneurial efforts, data-driven innovation is not immune to inferior ecosystems. Local and regional market fragmentation, lack of

appropriate infrastructure, lack of talent and investment (or availability with unfair conditions), issues with payments and logistics, multiple rules and regulations (or lack thereof), and absence of supporting legal structures and implementation are typical roadblocks that could limit the growth, scalability, or profitability of the best-thought-of endeavor. There are issues in data handling that could compromise privacy and threaten national security, so information security and data ethics are essential ingredients in any data recipe.

Apart from large data enterprises, start-up data projects are relatively easy to set up. Tools, technologies, platforms, and devices (e.g., cloud storage and processing, IoT, and open-source tools) are available at a very reasonable cost. What remains are multi-disciplinary talents and supporting ecosystems. The likes of Uber and Airbnb may be very few, but there are local ideas that can surpass major enterprises in both social and economic arenas.

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¹ <http://techcrunch.com/2015/03/03/in-the-age-of-disintermediation-the-battle-is-all-for-the-customer-interface/>