Introduction

A blockchain is a form of network-distributed ledger, whose users play an active role in keeping it constantly updated. The initial concept was designed in 2008 and implemented in 2009 as the core protocol of the digital currency Bitcoin. This first blockchain was conceived with the purpose of allowing peer-to-peer transactions through Bitcoin, and it has since been a source of inspiration for thousands of different developers.

The term "blockchain 2.0" refers to all the most recent evolutions of the blockchain, whose potential applications go far beyond exchanging value without an intermediary (Swan, 2015). Its benefits might include advanced security (Dorri et al., 2016), data transparency (Pilkington, 2016), digital intelligence (Swan, 2015), disintermediation and many others (Tasca et al. 2017).

Based on these benefits, according to a recent report from PwC, "blockchain could become a force anywhere trading occurs, trust is at a premium, and people need protection from identity theft" (Plansky et al., 2016). Such a potential is making blockchain the most promising technology in the digital arena together with Artificial Intelligence, as recognized by important institutions and market analysts (World Economic Forum, 2017; Gartner Group 2016).

Prominent thought leaders are endorsing this technology every day. Robert Greifeld, former Nasdaq CEO stated that blockchain is the «biggest opportunity set we can think of over the next decade». Don Tapscott, one of the most influential opinion makers in the digital landscapes, said of blockchain: "I've never seen a technology that I thought had a greater potential for humanity." Joi Ito, Director of the MIT Media Lab, recently wrote that "the blockchain will do to the financial system what the internet did to media."

The increasing enthusiasm of the business community around block-chain technologies is also powered by several concurring trends.

First, looking to the native application field of blockchain technologies, the global market of cryptocurrencies has grown significantly during the past few years and has exceeded $295 billion in April 2018, starting out at $18 billion at the beginning of 2017 and hitting $795 billion in January 2018.

Second, both the top ICT players and the largest venture capitalists are heavily investing in new companies focused on blockchain technologies, applications and standards. According to Crunchbase's data, during 2017 the worldwide venture investment in blockchain and blockchain-related startups hitted $1 billion starting from less than $600 millions in 2016.

Third, looking to new application fields of the blockchain, several big names outside financial services, such as Walmart and Maersk, have start-ed to launch implementation initiatives aimed at testing the benefits of distributed ledger technologies (Fortune, 2017).

Lastly, several companies, research institutions and industry consor-tia are joining forces to create blockchain standards, platforms and ap-plications. Examples of broad networking initiatives aimed at advancing blockchain technologies for either cross-industry applications or industry-specific applications are, respectively, Hyperledger and R3.

Unfortunately, the combined effect of these trends is leading to a hype ef-fect around blockchain (Morini, 2016; Notheisen, Hawlitschek and Wein-hardt, 2017). While it is commonly accepted that blockchain could lead to radical changes in many industries (Mattila, 2016), with a potential impact on the whole economy (Swan, 2015; Tapscott and Tapscott, 2016), several authors focus on the medium-to-long time needed in order to actually ex-perience some transformational impacts of this technology. This is mainly due to the foundational nature of blockchain (Iansiti and Lakhani, 2017):

> "It has the potential to create new foundations for our economic and social systems. But while the impact will be enormous, it will take decades for block-chain to seep into our economic and social infrastructure. [...] Many barri-ers—technological, governance, organizational, and even societal—will have to fall."

Consistently, most of the effort expended by the academic world in the last 5 years have been devoted to solving the challenges that are slowing down the potential disruption led by blockchain and distributed ledger tech-

nologies, with a main focus on Bitcoin and other cryptocurrency applications. Very few sources have focused their attention on a comprehensive assessment of the current application landscape of blockchain technologies (Salviotti, De Rossi and Abbatemarco, 2017).

As a consequence, business leaders and practitioners are still trying to address several unanswered questions:

- Where should I start my journey into this world?
- Who owns the blockchain in current business implementations?
- What are the main technical features of blockchain platforms currently implemented?
- What are the main business applications of blockchain, other than cryptocurrencies?
- What are the available options to build a solid blockchain strategy for my company?

According to Bill Gates "blockchain is a technology tour de force." Every blockchain journey should start from a sound understanding of the technical pillars that make this foundational technology capable of creating digital assets that are not duplicable. Chapter 1 is devoted to this point.

In Chapter 2 we start analyzing blockchain from different dimensions, analyzing aspects such as type of ownership, protocol independency and decentralized consensus mechanisms.

After gaining an understanding of the key features and the functioning mechanisms of our "vehicle" we can start dreaming about cool and unexplored destinations. The aim of Chapter 3 is to provide a list of the most valuable business applications of blockchain: cryptocurrencies, data certification , digital advertising, digital identity, digital voting and governance, energy management and distribution, financial payments platforms, gaming, IoT platforms, P2P content distribution, P2P resource distribution, prediction markets, and smart contract platforms. For each application, the chapter provides examples of relevant projects and use cases collected from the field by the authors during their researches at SDA Bocconi's DEVO Lab.

In Chapter 4 we show an overview of the current public blockchain landscape. The chapter focuses on an original market analysis conducted by the authors and aimed at collecting examples of the most interesting running blockchain, divided by the abovementioned application areas.

The first four chapters should provide the reader with all the definitions and technical concepts required to understand blockchain. By the time we reach Chapter 5, the reader will be ready to plan his full journey into this world; working on the different layers of the blockchain architecture, we present a continuum of four architectural options useful to shape the design of a company's blockchain strategy.

Are you ready to start your journey?