

Observatoire des futurs
EM Strasbourg

Bloackchain Interactions and BOT

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Interactions

1. Definition and Relationships with Other Factors

General Definition

The macro-variable "interactions" encompasses blockchain and BOT

- **Blockchain:** enables peer-to-peer exchanges without an intermediary. Transactions between two users are recorded in a "distributed" ledger stored on the computers of all participants. Transactions are then grouped and validated in blocks—which form a "blockchain." Each new block is added to the chain, linked to the previous one through a cryptographic process. The blockchain thus contains all transactions validated from the chain's creation to the present day.

= *a decentralized, transparent, reliable, automated, and efficient system*

- **A bot** is an automated or semi-automated software agent that interacts with computer servers. A bot connects to and communicates with the server, just like a client program used by a human. A bot also often refers to a "chatbot" because it can respond in a conversation.

Connection to Uberization and Industry 2030/Key Questions for the Future

- **Blockchain can impact the entire supply chain.** It promotes transparency in supply chains for consumers, while also helping to secure them against operational disruptions or various forms of illicit trade.
- **As a champion of disintermediation**, blockchain can be seen as a way to "Uberize Uber."
- **Bots can profoundly impact** manufacturers' **customer relationships** and facilitate the work of operators in the future.

2. Summary of the Retrospective Analysis

Retrospective

- **The birth of Bitcoin and blockchain 10 years ago:** Bitcoin emerged in the wake of the 2008 financial crisis. This “peer-to-peer cash exchange system” was first introduced in a ten-page paper written under the pseudonym Satoshi Nakamoto. It was launched shortly thereafter, in 2009.
- **The first chatbots date back a long time:** The very first chatbot, named ELIZA, was launched in 1966, and the Loebner Prize—the first award recognizing the most human-like conversational AI—was established in 1991. Clippy (Microsoft Word and Excel)



Current Trends

In General

- **End of the experimental phase:** blockchain moves out of the sandbox.
- **A technology that is not yet mature:** Generally speaking, blockchain is slow, inefficient, cannot handle many transactions per second, and is limited in its applications.
- **A technology supported by institutional players:** the French National Assembly, Caisse des Dépôts, Banque de France, the Treasury, and MEDEF
- **ICOs: Impressive fundraising efforts, but the funds are not always put to use.**
- **In Europe, the United Kingdom and France are the most advanced countries in terms** of pilot or large-scale blockchain deployments, while the United States leads in terms of investment.

Current Trends

In General

- **Market growth for chatbots:** forecast growth of 37 percent over the next four years, reaching $994.4 million in 2024. 80 percent of companies will use chatbots for customer interactions by 2020 and will generate $8 billion in savings for customer service.
- **Emergence of second-generation chatbots** capable of understanding several hundred user intents.
- **Development of HR chatbots:** specifically to answer administrative questions (such as those regarding time off or payroll, requests for information, or preparing for one-on-one interviews).

Current Trends

Uberization and Industry 2030

- **Blockchain is expected to become the essential technology for global supply chains by 2025** (Capgemini). Today, only 3 percent of organizations already using blockchain are deploying it at scale, 10 percent have a pilot program, and 87 percent are still in the experimental phases of this technology.
- **Persistent barriers to widespread blockchain adoption** include difficulties in estimating ROI and interoperability issues with existing IT systems.
- **Significant investments in the manufacturing sector are expected by 2022. The three sectors investing the most** in blockchain are finance, retail and services, and manufacturing (€285 million).
- **Development of BOTs in industry:** Enables operators to quickly access voice or text information on increasingly complex production lines (e.g., breakdowns, PLM queries, emergency detection, etc.)

3. Summary of Prospective Exploration

Major Trends / Constants

- **Digitalization of the economy**

Uncertainties

- **Scalability:** Will blockchain protocols—which currently handle limited amounts of data—be able to scale up in the event of widespread adoption?
- **Ability to address power consumption issues?** Verification, validation, and cryptographic operations consume a great deal of electricity.
- **Toward regulations to limit cryptocurrency volatility and speculation?** In 2017, the value of Bitcoin increased 14-fold. By late December, it had even surpassed €16,000 . . . only to fall back to around €6,000 in early 2018. This course valued the approximately 18 million existing bitcoins at nearly €200 billion as of December 31, 2017. There are more than 1,500 cryptocurrencies (Ethereum, Litecoin, Ripple, Dash, etc.).
- **Which blockchains will stand the test of time?** It remains unclear which blockchain(s) are here to stay: Bitcoin, Ethereum, Dash, Ripple . . . or others
- **Bitcoin hinders the growth of blockchain** Often viewed as a controversial topic, digital currency could hinder the growth of a technology with strong disruptive potential.
- **Development of a voice bot to replace call center agents** and achieve economies of scale.

Seed of Change

- Application **of blockchain technology to logistics:** ensuring supply chain transparency for consumers and safeguarding against operational disruptions or various forms of illicit trade. Several pilot projects are currently being rolled out.
- **ICOs and the IoT:** Funds raised through ICOs were primarily allocated to projects focused on infrastructure improvements and funding. It appears that a shift is underway in this area, with an increasing diversification toward sectors such as media, gaming, and the Internet of Things.



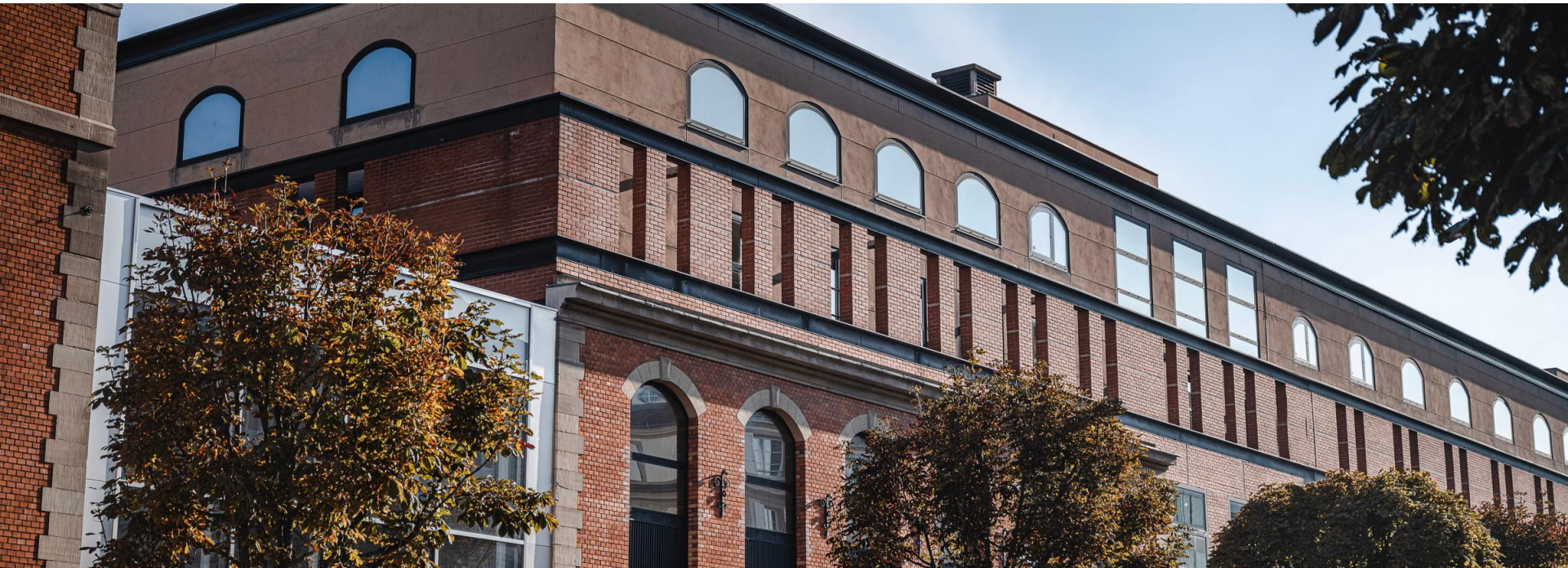
Controversies

- **Decentralization versus accountability.** The decentralization of the trust system—which offers advantages, particularly in terms of security through broader participation—makes it impossible to identify a single entity legally responsible for its security.
- **Freedom versus dependence.** The public blockchain presents itself as a self-managed collective asset to which anyone can (in principle) contribute. In practice, however, it turns out to be highly dependent on a handful of coders.
- **Anonymity versus identification.** The libertarian principle underlying blockchain involves the use of pseudonyms, which does not allow for the identification of participants (issue: combating money laundering and terrorist funding).

Disruptions

- **Toward a programmable economy?** Once the development phase is complete, this technology is likely to revolutionize the economy. Transactions, now fully digitized, could be certified. The processes surrounding these transactions—such as invitations to tender, partial validations by third parties, conditional settlements, etc.—could be managed automatically and securely through *smart contracts*. In short, the economy would become partially programmable.

- **The "Uberization" of Uber by blockchain**





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