

1.1 Problem

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As of July 2021, there were 6,044 Cryptocurrencies available, with a total market cap of around \$750 Billion^{1,2)}. DIDO implementations and interest in them are currently in the Positive Hype part of the technology [Hype-Cycle](#) as defined by Gartner.³⁾

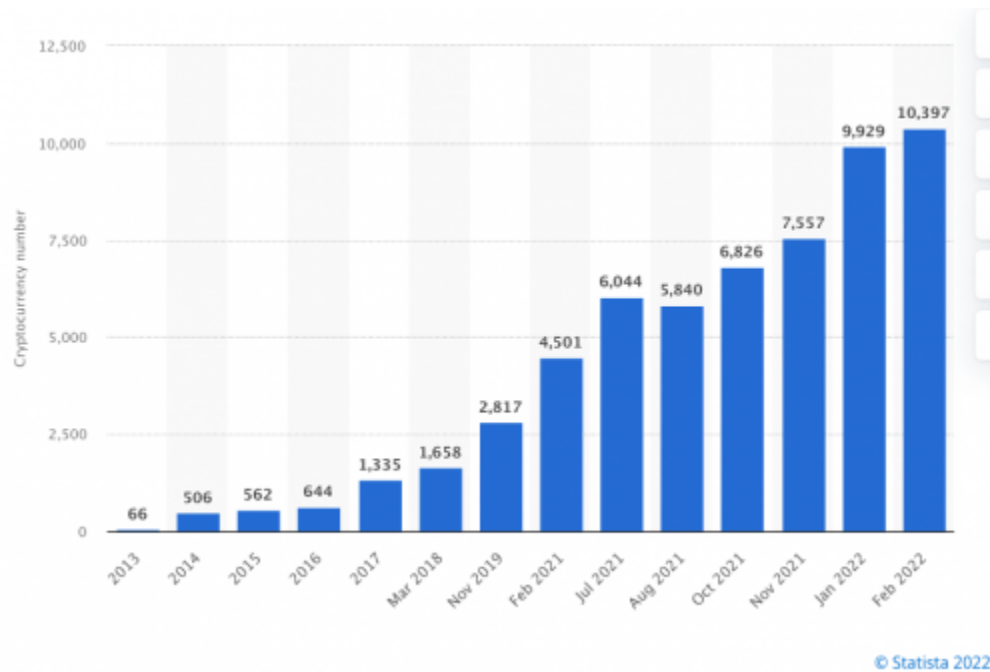


Figure 1: Number of cryptocurrencies worldwide from 2013 to Feb 2022

<https://www.statista.com/statistics/863917/number-crypto-coins-tokens/>

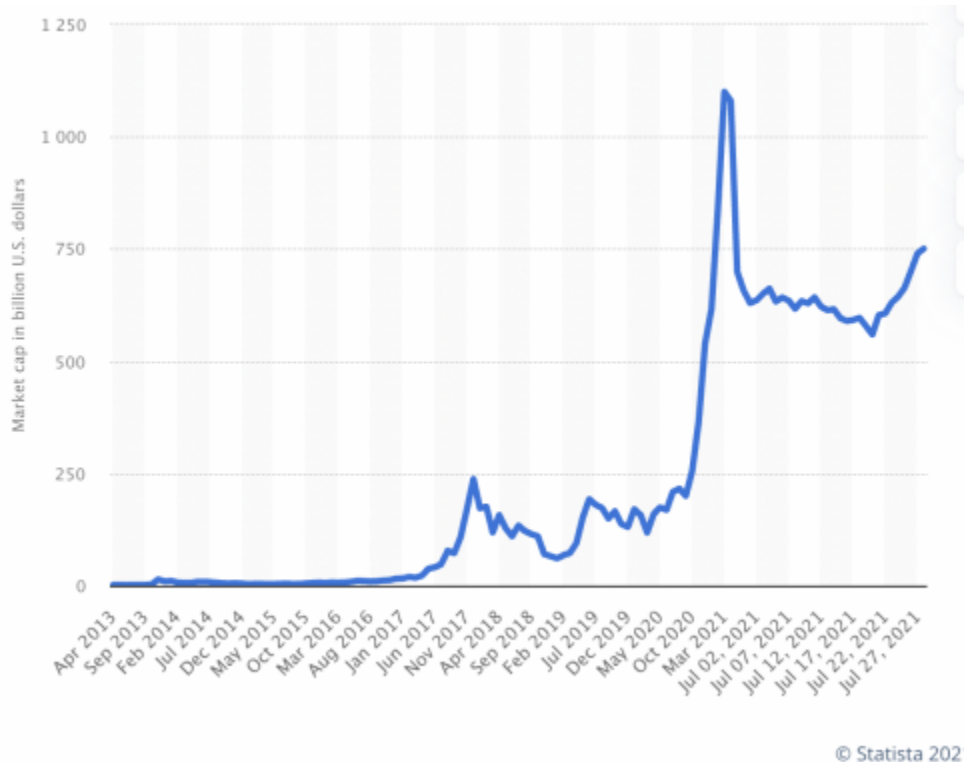


Figure 2: Market capitalization of Bitcoin from April 2013 to July 28, 2021(in billion U.S. dollars) [Statista]

The naming of the Hypecurve is new, but the understanding of the hype curves has a long history.

There is a famous story, we don't know if it's true, about how in the late summer of 1929, a shoeshine boy gave Joe Kennedy stock tips, and Kennedy, being a wise old investor, thought, "If shoeshine boys are giving stock tips, then it's time to get out of the market." So the story says Joe Kennedy sold all of his stocks and made a killing...⁴⁾

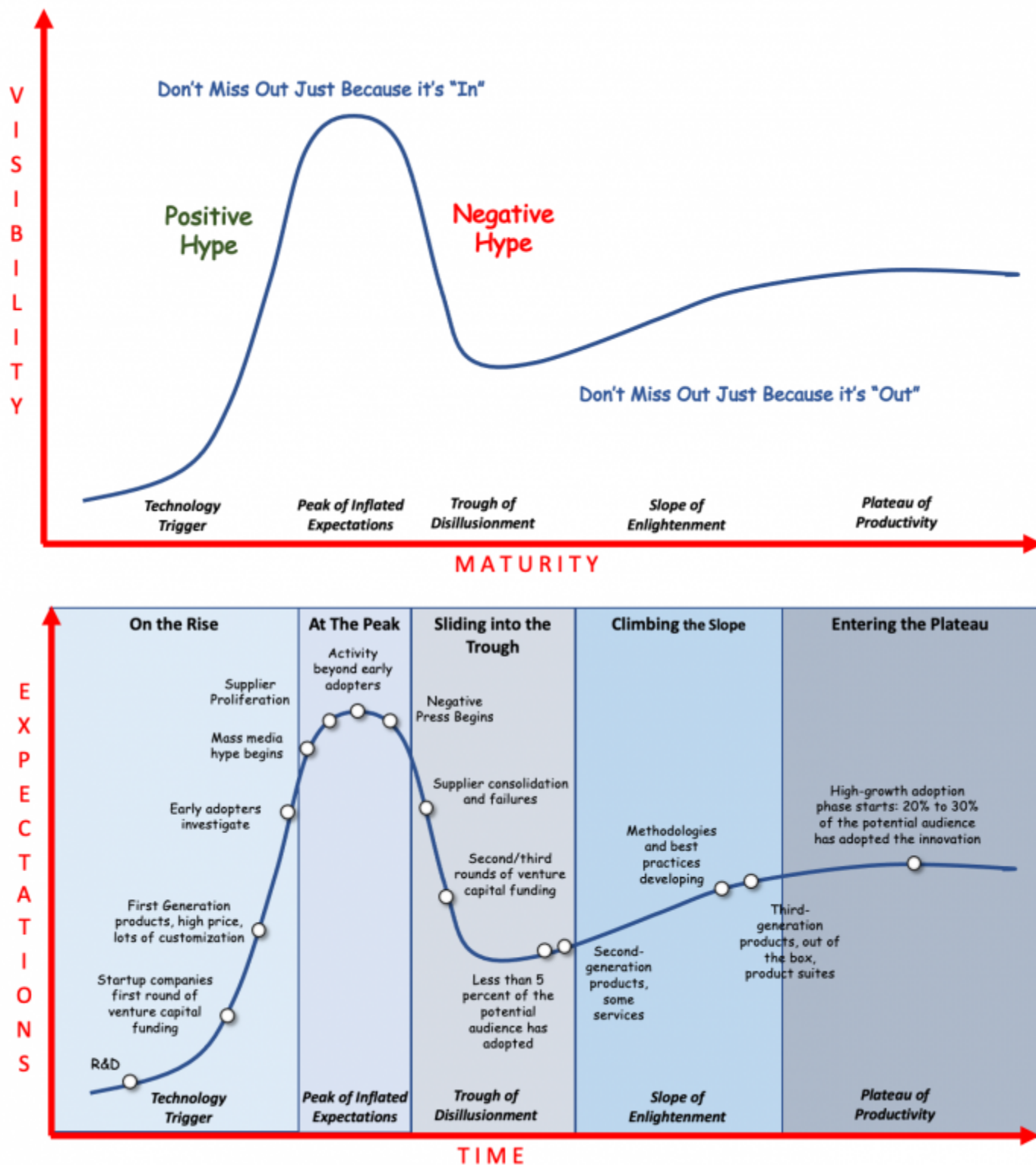


Figure 3: Gartner Group Hype Cycle

A major concern and part of the motivation behind the creation of a Reference Architecture (RA) is the lack of a comprehensive mechanism to evaluate all the risks associated with DIDO implementations (especially cryptocurrencies). Many of the risks to DIDOs are common to distributed computing and have already been identified and addressed using risk mitigators in existing processes, procedures, and standards. An example is vulnerabilities in source code. Unfortunately, no statistics are available regarding how rigorously these risk mitigators are applied to DIDOs, if at all. Specifying a Reference

Architecture and cross-referencing its components to a set of existing standards establishes the following:

- An actuarial framework for assessing risks associated with existing products
- Metrics for evaluating, comparing, and selecting existing products
- A roadmap for future standard implementation, enhancement, and development

¹⁾

Market capitalization of Bitcoin from April 2013 to July 28, 2021(in billion U.S. dollars), Statista, Accessed: 29 July 2021, <https://www.statista.com/statistics/377382/bitcoin-market-capitalization/>

²⁾

D. Palmer, "Market Cap Hits All-Time High," 23 August 2017. [Online]. Available: <https://www.coindesk.com/150-billion-total-cryptocurrency-market-cap-hits-new-time-high/>. [Accessed 20 November 2017].

³⁾

Understanding Gartner's Hype Cycles, 30 May 2003, Alexander Linden, Jackie Fenn, <https://www.bus.umich.edu/KresgePublic/Journals/Gartner/research/115200/115274/115274.html>

⁴⁾

Olivia B. Waxman, Time, 24 October 2019, Accessed: 29 July 2021, <https://time.com/5707876/1929-wall-street-crash/>

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