

TITULO DA MONOGRAFIA: UM MODELO UFRJ

Nome do Autor Sobrenome

Projeto de Graduação apresentado ao Curso de Engenharia Eletrônica e de Computação da Escola Politécnica, Universidade Federal do Rio de Janeiro, como parte dos requisitos necessários à obtenção do título de Engenheiro.

Orientador: Nome do Terceiro Orientador Sobrenome

Rio de Janeiro

Novembro de 2023

#### UNIVERSIDADE FEDERAL DO RIO DE JANEIRO



#### Escola Politécnica

**UFRJ**Departamento de Engenharia Eletrônica e de Computação

#### TITULO DA MONOGRAFIA: UM MODELO UFRJ

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PROJETO FINAL SUBMETIDO AO CORPO DOCENTE DO DEPARTAMENTO DE ENGENHARIA ELETRÔNICA E DE COMPUTAÇÃO DA ESCOLA POLITÉCNICA DA UNIVERSIDADE FEDERAL DO RIO DE JANEIRO COMO PARTE DOS REQUISITOS NECESSÁRIOS PARA A OBTENÇÃO DO GRAU DE ENGENHEIRO ELETRÔNICO E DE COMPUTAÇÃO.

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# RIO DE JANEIRO, RJ – BRASIL NOVEMBRO DE 2023

Sobrenome, Nome do Autor

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Referências Bibliográficas: p. 68 – 70.

Primeira palavra-chave.
 Segunda palavra-chave.
 Sobrenome,
 Nome do Terceiro Orientador.
 Universidade Federal do Rio de Janeiro, UFRJ, Curso de Engenharia Eletrônica e de Computação.
 Titulo da monografia: um modelo

 $Dedicado \ \grave{a} \ uma \ pessoa.$ 

# Agradecimentos

Gostaria de agradecer a todos.

Resumo do Projeto de Graduação apresentado à Escola Politécnica/UFRJ como

parte dos requisitos necessários para a obtenção do grau de Engenheiro Nuclear

TITULO DA MONOGRAFIA: UM MODELO UFRJ

Nome do Autor Sobrenome

Novembro/2023

Orientador: Nome do Terceiro Orientador Sobrenome

Departamento: Engenharia Eletrônica e de Computação

O bitcoin é a primeira moeda descentralizada do mundo. Isso significa que, além

de não ser regulado por governos, bancos ou empresas, é possível comprar, enviar e

receber bitcoins sem nenhum intermediário, como bancos ou emissores de cartão de

crédito.

Além disso, é uma moeda limitada. Diferentemente do real, dólar e euro, mo-

edas que podem ser emitidas conforme os países sentirem necessidade, o bitcoin e

seu código foram criados de forma que somente 21 milhões de moedas possam ser

emitidas – este é o limite. Até 2019, estima-se que 18 milhões de bitcoins já haviam

sido emitidos.

vii

Abstract of Undergraduate Project presented to POLI/UFRJ as a partial fulfillment

of the requirements for the degree of Nuclear Engineer

TITLE OF THE MONOGRAPH: A UFRJ MODEL

Nome do Autor Sobrenome

November/2023

Advisor: Nome do Terceiro Orientador Sobrenome

Department: Eletronic and Computer Engineering

Bitcoin (BTC) is a cryptocurrency, a virtual currency designed to act as money

and a form of payment outside the control of any one person, group, or entity,

thus removing the need for third-party involvement in financial transactions. It is

rewarded to blockchain miners for verifying transactions and can be purchased on

several exchanges.

viii

# Sumário

Li	sta de Figuras	K
Li	sta de Tabelas	×
Li	sta de Gráficos	i
Li	sta de Quadros xi	i
Li	sta de Símbolos	i
Li	sta de Abreviaturas	V
1	Introdução	1
2	Revisão Bibliográfica	4
3	Design da Pesquisa	5
	3.1 Nível 2	5
	3.1.1 Nível 3	5
4	Análise	5
5	Síntese	1
6	Conclusões	2
R	eferências Bibliográficas	3
$\mathbf{A}_{\mathbf{l}}$	pêndice A Cientometria	4
Αı	pêndice B Bibliometria	5

# Lista de Figuras

Figura 1.1	Uma figura de exemplo	 	•					•	2
Figura 3.1	Uma figura deitado de exemplo	 							11

# Lista de Tabelas

Tabela 2.1	Exemplos de citações utilizando o comando padrão \cite do	
IATEX (	e o comando \citet, fornecido pelo pacote natbib	4
Tabela 3.1	Your caption here	13

# Lista de Gráficos

Gráfico 1.1	Um gráfico de exemplo										

# Lista de Quadros

Quadro 3.1	Um quadro de exemplo	•	•	•	•	•	•	•		 •	•		•	•	Ć
Quadro 4.1	Um quadro de exemplo									 •				•	17
Quadro 4.2	Um quadro de exemplo														19

# Lista de Símbolos

- $\emptyset$  Conjunto vazio, p. 1
- $\mathbb{R}$  Conjunto dos números reais, p. 1

## Lista de Abreviaturas

COPPE Instituto Alberto Luiz Coimbra de Pós-graduação e Pesquisa

de Engenharia, p. 1

RSL Revisão Sistemática da Literatura, p. 1

### Capítulo 1

## Introdução

Subindo nos ombros de gigantes.

— Isaac Newton

Primeiro de tudo precisa ser definido o que é a engenharia .

Segundo a norma de formatação de teses e dissertações do Instituto Alberto Luiz Coimbra de Pós-graduação e Pesquisa de Engenharia (COPPE), toda abreviatura deve ser definida antes de utilizada.

Do mesmo modo, é imprescindível definir os símbolos, tal como o conjunto dos números reais  $\mathbb{R}$  e o conjunto vazio  $\emptyset$ .

Um exemplo de citação longa nas regras da ABNT (4cm de recuo e fonte menor) feita com o ambiente longquote The primary objective of this investigation was to determine the feasibility of detecting corrosion in aluminum Naval aircraft components with neutron radiographic interrogation and the use of standard corrosion penetrameters. Secondary objectives included the determination of the effect of object thickness on image quality, the defining of minimum levels of detectability and a preliminary investigation of a means whereby the degree of corrosion could be quantified with neutron radiographic data. [11996IESANIesan]

Agora vamos testar o uso de abreviações, com uma que aparecerá muitas vezes ao longo do texto: RSL (Revisão Sistemática da Literatura). . Otorrinolaringologista, Otorrinolari

gista, Otorrinolaringologista, Otorrinolaringologista,

Inovação aberta

Corporate-startup
engagement

Corporação

Startup

Figura 1.1: Uma figura de exemplo

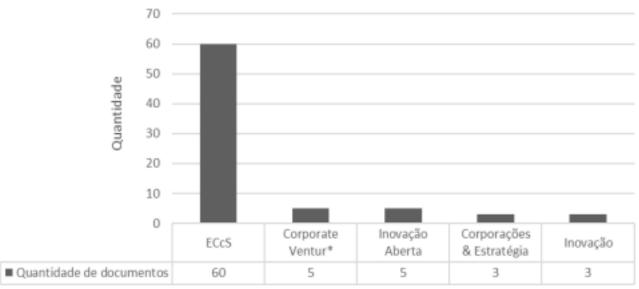
Fonte: Elaborado pelo autor

Otorrinolaringologista, Otorri

Otorrinolaringologista, Otorri ringologista, Otorrinolaringologista, Otorrinolaringologista.

Gráfico 1.1: Um gráfico de exemplo





Fonte: Elaborado pelo autor

## Capítulo 2

## Revisão Bibliográfica

Para ilustrar a completa adesão ao estilo de citações e listagem de referências bibliográficas, a Tabela 2.1 apresenta citações de alguns dos trabalhos contidos na norma fornecida pela CPGP da COPPE, utilizando o estilo numérico.

Tabela 2.1: Exemplos de citações utilizando o comando padrão \cite do LATEX e o comando \citet, fornecido pelo pacote natbib.

Tipo da Publicação	\cite	\citet
Livro	[21988ABRAHAM et al. Abraham, Marsden, Ratiu, e Matthew]	book-example
Artigo	[11996IESANIesan]	article-example
Relatório	[31976MAESTRELLOMaestrello]	techreport-example
Relatório	[41977GARRETGarret]	techreport-exampleIn
Anais de Congresso	[51977GURTINGurtin]	inproceedings-example
Séries	[61987COWINCowin]	incollection-example
Em Livro	[71976EDWARDSEdwards]	inbook-example
Dissertação de mestrado	[81990TUNTOMO et al.Tuntomo et al.]	mastersthesis-example
Tese de doutorado	[91994PAES JUNIORPaes Junior]	phdthesis-example

### Capítulo 3

### Design da Pesquisa

#### 3.1 Nível 2

And taking advantage of the quote from Satoshi Nakamoto, there are also those who say: "Bitcoin was not supposed to be like that. This is not what Satoshi Nakamoto conceived". Note, I don't know what exactly the individual or group behind the Bitcoin invention conceived. But you see, every human invention encapsulates the knowledge and knowhow of its creator. Encapsulate your ideas. But after "free in the world", invention has a "life of its own", and the ecosystem that was created from the invention has a life of its own. For good and for bad. There is not much more to be said for this.

We are near the end of the opinions I would like to express. One of the last concerns the opinions of politicians, investors, bankers and researchers about the future potential for cryptocurrencies. As I've already expressed, I see no reason to treat cryptocurrencies as an innovation unlike any other technological advance seen in humanity. And so, I am optimistic about the potential of cryptocurrencies, but realistic, far from the detachment from reality of some "moon boys". Now, one of the nuisances driving the perceived value of cryptocurrencies up is good news coming from these industries, which is fair, because it implies progress in adoption. On the other hand, there is the impact of bad news also coming from politicians, investors, bankers and researchers. And it is on this news that I want to do one of our latest mental exercises.

#### 3.1.1 Nível 3

These people, sometimes representatives of large organizations, are ultimately the guardians of the status quo, for better or for worse. The opinions they declare, therefore, never define the true disruptive potential of cryptocurrencies, but rather the position that public opinion is wanted to believe on the subject. What do you expect to hear, for example, in an interview with, for example, an FED director? Do you think it's possible that he'll say something like: "Cryptocurrencies are indeed disruptive, they have enormous potential to transform the current financial system, and it's all a shame, because the organization I represent tends to lose more and more relevance because of it. of that and we will also lose the monopoly of issuing fiat money". Do you really think that a representative of the status quo, public or private, will say something like this?

Representatives of the status quo will always present opinions in defense of the status quo. It doesn't matter which arguments are used. The arguments will sometimes be good, sometimes bad, but the purpose behind is always to maintain the status quo. Simultaneously with any attempt to maintain the status quo, there are organizations that perceive change as an opportunity to uplift the current status quo, that is, to turn innovation into a competitive differential for themselves. These organizations can be companies or even countries, and in the case of cryptocurrencies, they can see: "Ok, I'm going to dive into cryptocurrencies, because I can make this a competitive advantage for my country."

#### 3.1.1.1 Nivel 4

It is a natural scenario, inherent to any major transformation in society, markets, form and type of goods and services provided. The point is: bullish news about crypto adoption is indeed bullish news. But you have to be careful with pessimistic news, because deep down, from the beginning, you never expected anything different after all. Organizations that find themselves in a position of dominance of the current status quo, in control of the financial system, will only take positive moves in favor of cryptocurrencies to avoid a "greater evil" from falling behind in relation to other organizations that adopt cryptos as a competitive differential.

And as a last reflection, I invite you to the following reflection: how wrong can all this go? Could it be that all the disruptive potential of cryptocurrencies hasn't already been priced in, and haven't we gone much further? This question is very pertinent. The most pertinent for the cryptocurrency investor after all. The "moon boys" want us to believe that "there are no limits", but in my opinion, there is a

limit. Although the adoption of cryptos by society occurs extremely quickly and painlessly, without the need for a "war"against the current status quo, even if the entire world economic system is transformed, there are still limits to the intrinsic and extrinsic value of the sector. Remember the economy is bigger than that.

**3.1.1.1.1** Nível 5 Judging by the innovations that cryptocurrencies are likely to bring, I believe there is still room for investment in the sector, without it being detached from the real potential of generating value to society. And I believe this because, a lot is said about cryptoCURRENCY, but beyond that, the central point here is not the money, but the transactions. And transactions aren't just economical. Every exchange of information in social dynamics is a transaction. The combination of cryptography with a decentralized consensus protocol undoubtedly finds its greatest utility in the financial system, but it is far from being the last. Ultimately, a decentralized consensus protocol is likely to change the dynamics of the entire internet as we know it today. This is definitely not a small thing, and it is definitely not of little value.

**3.1.1.1.1.1 Nível 6** And taking advantage of the quote from Satoshi Nakamoto, there are also those who say: "Bitcoin was not supposed to be like that. This is not what Satoshi Nakamoto conceived". Note, I don't know what exactly the individual or group behind the Bitcoin invention conceived. But you see, every human invention encapsulates the knowledge and knowhow of its creator. Encapsulate your ideas. But after "free in the world", invention has a "life of its own", and the ecosystem that was created from the invention has a life of its own. For good and for bad. There is not much more to be said for this.

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Quadro 3.1: Um quadro de exemplo

CRITÉRIOS DE INCLUSÃO	CRITÉRIOS DE REJEIÇÃO
(a) Trabalhos com foco no engajamento corporativo com startups	(a) Texto completo indisponível
(b) Trabalhos que falam do tema de CSE, a partir das palavras-chave elencadas	(b) Trabalhos duplicados – será considerada a versão mais recente ou mais completa
(c) Trabalhos de literatura cinza que digam respeito ao tema proposto	(c) Estudos que não falam do tema do engajamento corporativo com startups, a partir das palavras-chave elencadas
(d) Textos disponíveis para consulta e/ou "download" em sua completude	(d) Estudos não apresentados em inglês e/ou português
<ul> <li>(e) Documentos acadêmicos e/ou de mercado, que cumpram os critérios (a) ao (d) e possam servir para as análises e discussões</li> </ul>	(e) Trabalhos que não atendam às metas de trabalho dessa pesquisa

Fonte: elaborado pelo autor

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Figura 3.1: Uma figura deitado de exemplo

RAZÕES PARA CSE	MODOS DE CSE	ACELERADORAS [15]	EVENTOS ONE OPPDESAFIOS [13]	CORPORATE VENTURE CAPITAL [13]	PUSÕES E AQUISIÇÕES [12]	ESPAÇOS DE COWORKING [1 I]	PLATAFORMA E PARCERIAS [11]	INCUBADORA CORPORATIVA [11]	NCUBADORA DE NEGÓCIOS [10]	SERVIÇOS DE SUPORTE [9]
Acesso à inovação [	21]	[2] Goldstein, Lehmann e Prax, 2015; Bonzom e Netessine, 2016.		[3] Furlani, 2018; Lucerga, 2018; Gutmann, 2018.	[2] Bonzom e Netessine, 2016; Furlani, 2018.			[2] Weiblen e Chesbrough, 2015; Lucerga, 2018.	[1] Banzom e Netessine, 2016.	
Acesso a novos mercados/clientes/fo (ecossistema de neg		[4] Goldstein, Lehmann e Prax, 2015; Arthur D little, 2016; OpenAxel, 2016; Brigl et al., 2019.	[4] Bonzom e Netessine, 2016; OpenAxel, 2016; Furlani, 2018; Jung, 2018.	[7] Mocker, Bielli e Haley, 2015; Bannerjee, Bielli e Haley, 2015; Bonzom e Netessine, 2016; Sudati, 2016; Furlani, 2018; Mason, Arrington e Mavson, 2019; Brigl et al., 2019.	[6] Mocker, Bielli e Haley, 2015; Bannerjee, Bielli e Haley, 2015; Bonzom e Netessine, 2016; Arthur D Little, 2016; Sudati, 2016; Rundquist e Österling, 2018.	[2] Bonzom e Netessine, 2016; Kitsuta e Quadros, 2018.	[2] Weiblen e Chesbrough, 2015; 500 Startups, 2016.	[2] Carvalho, 2019; Lucerga, 2018.	[1] Arthur D Little, 2016.	
Agilidade e velocida	ade [18]	[2] Goldstein, Lehmann e Prax, 2015; Ream e Schatsky, 2016.		[2] Van Peteghem e Mohout, 2018; Gutmann, 2018.	[1] KPMG, 2015.					
Diversificação da cu [15]	ultura de inovação	[5] Goldstein, Lehmann e Prax, 2015; Mocker, Bielli e Haley, 2015; Bannerjee, Bielli e Haley, 2015; Bonzom e Netessine, 2016; Sudati, 2016.	[5] Mocker, Bielli e Haley, 2015; Bannerjee, Bielli e Haley, 2015; Bonzom e Netessine, 2016; Sudati, 2016; Jung, 2018.	[2] Gutmann, 2018; Bagno, Salerno, Souza Junior, 2019.	[2] Bonzom e Netessine, 2016; Arthur D Little, 2016.	[3] Mocker, Bielli e Haley, 2015; Bannerjee, Bielli e Haley, 2015; Bonzom e Netessine, 2016.		[3] Mocker, Bielli e Haley, 2015; Bannerjee, Bielli e Haley, 2015; Sudati, 2016.	[4] Mocker, Bielli e Haley, 2015; Bannerjee, Bielli e Haley, 2015; Bonzom e Netessine, 2016; Sudati, 2016.	[1] Bonzom e Netessine, 2016.
Busca por novos (m	odelos de) negócios	[2] Goldstein, Lehmann e Prax, 2015; Bonzom e Netessine, 2016.		[5] Bonzom e Netessine, 2016; Gutmann, 2018; Furlani, 2018; Lucerga, 2018; Bagno, Salerno, Souza Junior, 2019.	[1] KPMG, 2015.		[1] OpenAxel, 2016.	[3] Linna, 2017; Richardson, 2018; Kitsuta e Quadros, 2018.		
Busca por conhecim [13]	nento tecnológico		[2] Sudati, 2016; Jung, 2018.	[1] Vanhaverbeke, Vermeersch e De Zutter, 2012.	[1] Thieme, 2017.	[1] Kitsuta e Quadros, 2018.	[1] Hora et al., 2017.	[1] Rundquist e Österling, 2018.		
Acesso a novas tecn	ologias [12]	[4] Bonzom e Netessine, 2016; Arthur D Little, 2016; Ream e Schatsky, 2016; OpenAxel, 2016.	[3] Bonzom e Netessine, 2016; Furlani, 2018; Jung, 2018.	[4] KPMG, 2015; Bonzom e Netessine, 2016; OpenAxel, 2016; Mason, Arrington e Mawson, 2019.	[6] Arthur D Little, 2016; Sudati, 2016; Saalasti, 2016; Thieme, 2017; Furlani, 2018; Rundquist e Österling, 2018.		[2] 100 Open Startups, 2017; Hora et al., 2017.	[1] Rundquist e Österling, 2018.	[3] Arthur D Little, 2016; Furlani, 2018; Kitsuta e Quadros, 2018.	
Propensão ao risco [	[11]	[1] Goldstein, Lehmann e Prax, 2015.		[1] Gutmann, 2018.			[1] 500 Startups, 2016.			
Acesso a novos taler (reter talentos) [10]	ntos	[3] Goldstein, Lehmann e Prax, 2015; Ream e Schatsky, 2016; Brigl et al., 2019.	[2] Bonzom e Netessine, 2016; Furlani, 2018.	[2] KPMG, 2015; Mason, Arrington e Mawson, 2019.	[2] Arthur D Little, 2016; Furlani, 2018.			[1] Carvalho, 2019.		
Soluções com meno [10]	r tempo e/ou custo		[1] Bonzom e Netessine, 2016.				[1] OpenAxel, 2016.			
Processos burocrátic [8]	cos e pouco flexíveis				[1] Arthur D Little, 2016.			[1] Weiblene Chesbrough, 2015.		
Ampliação das fonte	es de receita [7]	[2] Ream e Schatsky, 2016; De la Tour et al., 2017.		[7] Bonzom e Netessine, 2016; Arthur D Little, 2016; Sudati, 2016; OpenAvel, 2016; Thieme, 2017; Lucerga, 2018; Carvalho, 2019.				[1] Furlani, 2018.	[1] Furlani, 2018.	

Fonte: Elaborado pelo autor

And taking advantage of the quote from Satoshi Nakamoto, there are also those who say: "Bitcoin was not supposed to be like that. This is not what Satoshi Nakamoto conceived". Note, I don't know what exactly the individual or group behind the Bitcoin invention conceived. But you see, every human invention encapsulates the knowledge and knowhow of its creator. Encapsulate your ideas. But after "free in the world", invention has a "life of its own", and the ecosystem that was created from the invention has a life of its own. For good and for bad. There is not much more to be said for this.

We are near the end of the opinions I would like to express. One of the last concerns the opinions of politicians, investors, bankers and researchers about the future potential for cryptocurrencies. As I've already expressed, I see no reason to treat cryptocurrencies as an innovation unlike any other technological advance seen in humanity. And so, I am optimistic about the potential of cryptocurrencies, but realistic, far from the detachment from reality of some "moon boys". Now, one of the nuisances driving the perceived value of cryptocurrencies up is good news coming from these industries, which is fair, because it implies progress in adoption. On the other hand, there is the impact of bad news also coming from politicians, investors, bankers and researchers. And it is on this news that I want to do one of our latest mental exercises.

These people, sometimes representatives of large organizations, are ultimately the guardians of the status quo, for better or for worse. The opinions they declare, therefore, never define the true disruptive potential of cryptocurrencies, but rather the position that public opinion is wanted to believe on the subject. What do you expect to hear, for example, in an interview with, for example, an FED director? Do you think it's possible that he'll say something like: "Cryptocurrencies are indeed disruptive, they have enormous potential to transform the current financial system, and it's all a shame, because the organization I represent tends to lose more and more relevance because of it. of that and we will also lose the monopoly of issuing fiat money". Do you really think that a representative of the status quo, public or private, will say something like this? <sup>1</sup>

<sup>&</sup>lt;sup>1</sup>Este é um teste para checar o correto funcionamento das notas de rodapé.

foo	bar
foo	bar

Tabela 3.1: Your caption here

Representatives of the status quo will always present opinions in defense of the status quo. It doesn't matter which arguments are used. The arguments will sometimes be good, sometimes bad, but the purpose behind is always to maintain the status quo. Simultaneously with any attempt to maintain the status quo, there are organizations that perceive change as an opportunity to uplift the current status quo, that is, to turn innovation into a competitive differential for themselves. These organizations can be companies or even countries, and in the case of cryptocurrencies, they can see: "Ok, I'm going to dive into cryptocurrencies, because I can make this a competitive advantage for my country."

It is a natural scenario, inherent to any major transformation in society, markets, form and type of goods and services provided. The point is: bullish news about crypto adoption is indeed bullish news. But you have to be careful with pessimistic news, because deep down, from the beginning, you never expected anything different after all. Organizations that find themselves in a position of dominance of the current status quo, in control of the financial system, will only take positive moves in favor of cryptocurrencies to avoid a "greater evil" from falling behind in relation to other organizations that adopt cryptos as a competitive differential.

And as a last reflection, I invite you to the following reflection: how wrong can

all this go? Could it be that all the disruptive potential of cryptocurrencies hasn't already been priced in, and haven't we gone much further? This question is very pertinent. The most pertinent for the cryptocurrency investor after all. The "moon boys" want us to believe that "there are no limits", but in my opinion, there is a limit. Although the adoption of cryptos by society occurs extremely quickly and painlessly, without the need for a "war" against the current status quo, even if the entire world economic system is transformed, there are still limits to the intrinsic and extrinsic value of the sector. Remember the economy is bigger than that.

Judging by the innovations that cryptocurrencies are likely to bring, I believe there is still room for investment in the sector, without it being detached from the real potential of generating value to society. And I believe this because, a lot is said about cryptoCURRENCY, but beyond that, the central point here is not the money, but the transactions. And transactions aren't just economical. Every exchange of information in social dynamics is a transaction. The combination of cryptography with a decentralized consensus protocol undoubtedly finds its greatest utility in the financial system, but it is far from being the last. Ultimately, a decentralized consensus protocol is likely to change the dynamics of the entire internet as we know it today. This is definitely not a small thing, and it is definitely not of little value.

### Capítulo 4

### Análise

And taking advantage of the quote from Satoshi Nakamoto, there are also those who say: "Bitcoin was not supposed to be like that. This is not what Satoshi Nakamoto conceived". Note, I don't know what exactly the individual or group behind the Bitcoin invention conceived. But you see, every human invention encapsulates the knowledge and knowhow of its creator. Encapsulate your ideas. But after "free in the world", invention has a "life of its own", and the ecosystem that was created from the invention has a life of its own. For good and for bad. There is not much more to be said for this.

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Quadro 4.1: Um quadro de exemplo

cell1	cell2	cell3
cell4	cell5	cell6
cell7	cell8	cell9

Fonte: Elaborado pelo autor

And taking advantage of the quote from Satoshi Nakamoto, there are also those who say: "Bitcoin was not supposed to be like that. This is not what Satoshi Nakamoto conceived". Note, I don't know what exactly the individual or group behind the Bitcoin invention conceived. But you see, every human invention encapsulates the knowledge and knowhow of its creator. Encapsulate your ideas. But after "free in the world", invention has a "life of its own", and the ecosystem that was created from the invention has a life of its own. For good and for bad. There is not much more to be said for this.

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Quadro 4.2: Um quadro de exemplo

cell1	cell2	cell3
cell4	cell5	cell6
cell7	cell8	cell9

Fonte: Elaborado pelo autor

It is a natural scenario, inherent to any major transformation in society, markets, form and type of goods and services provided. The point is: bullish news about crypto adoption is indeed bullish news. But you have to be careful with pessimistic news, because deep down, from the beginning, you never expected anything different after all. Organizations that find themselves in a position of dominance of the current status quo, in control of the financial system, will only take positive moves in favor of cryptocurrencies to avoid a "greater evil" from falling behind in relation to other organizations that adopt cryptos as a competitive differential.

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# Capítulo 5

# Síntese

Somente um exemplo

# Capítulo 6

# Conclusões

E para concluir ...

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# Apêndice A

## Cientometria

Um apêndice denominado "A".

# Apêndice B

## Bibliometria

Um apêndice denominado "B".