QUANTUM NUMBERS CORP.

Management's Discussion and Analysis

December 31, 2019

The following management's discussion and analysis ("MD&A") of the financial condition and results of the operations of Quantum Numbers Corp. (formerly Active Growth Capital Inc.) (the "Company") constitutes management's review of the factors that affected the Company's financial and operating performance for the year ended December 31, 2019 compared to the year ended December 31, 2018 prepared with information available as of May 29, 2020.

Further information regarding the Company and its operations are filed electronically on the System for Electronic Document Analysis and Retrieval ("SEDAR") in Canada and can be obtained from www.sedar.com

1.1 FORWARD LOOKING STATEMENTS

The sections of this management discussion and analysis ("MD&A") on the Company's strategy and action plan, its intellectual properties, development and financial reporting reflecting management's current expectations contain "forward-looking statements." Such statements should be understood in context, particularly statements that reflect the Company's opinions, estimates and expectations about future events or results. Such forward-looking statements are subject to certain factors and involve some risks and uncertainties. There can be no assurance that such statements will prove to be accurate. Factors that could cause future results, activities and events to differ materially from those expressed or implied by such forward-looking statements include, but not limited to, possibility or not to obtain the patent, time required to obtain such patent, risks inherent in the hi-tech industry, and the time it will take for the industry to be ready to move to quantic solutions. These risks and uncertainties are described in this MD&A and also the annual information form filed on SEDAR.

1.2 INCORPORATION, NATURE OF OPERATIONS AND GOING CONCERN

Quantum Numbers Corp. (the "Company" or "Quantum") was incorporated under the *Business Corporations Act* of Ontario on July 19, 2007.

The head office, principal address and records office of the Company are located at 3755 E Blvd Matte, suite 201, Brossard, Québec, J4Y 2P4. The Company is a developer of a new generation of cryptographic solutions pursuant to the acquisition of intellectual property.

The business of technology involves a high degree of risk and there can be no assurance that projects under research and development will proceed through to achieve commercialization. Risks related to the value of the Company's intangible assets, completing proof of concept studies, protecting intellectual property rights, the ability of the Company to raise alternative financing, and risks inherent to new technologies, such as risk of obsolescence, slow adoption and competing technological advances. Changes in future conditions could require material impairment of assets.

The Company's financial statements have been prepared in accordance with International Financial Reporting Standards ("IFRS") on a going concern basis, which contemplates that the Company will be able to realize its assets and discharge its liabilities in the normal course of business. Since its incorporation, the Company has accumulated a deficit of $6,224,366 (December 31, 2018 - $5,599,373) and during the year ended December 31, 2019, incurred a net loss and comprehensive loss of $663,318 (December 31, 2018 - $916,042) and used cash in operations of $596,280 (December 31, 2018 - $871,769). The Company does not currently have available resources and liquidity to fully execute its business plan over the next 12 months and is dependent on the Company's ability to raise additional finances to fund its operations. The above factors indicate a material uncertainty that may cast a significant doubt as to the Company's ability to continue as a going concern.

The financial statements have been prepared on a going-concern basis which contemplates that the Company will continue in operation in the foreseeable future and will be able to realize its assets and discharge its liabilities in the normal course of business. This assumption is based on the current net assets of the Company and management's current operating plans.

1.2 INCORPORATION, NATURE OF OPERATIONS AND GOING CONCERN (Continued)

The financial statements do not reflect the adjustments to the carrying values of assets and liabilities, the reported amounts of expenses and the classification of statement of financial position items if the going concern assumption was deemed inappropriate. Management did not take these adjustments into account as it believes in the validity of the going concern assumption.

The Company intends to patent its technologies wherever it is required. In the meantime, to ensure sufficient cash flow until market readiness, the Company is looking at M&A transactions to achieve its objectives.

1.3 CHANGES IN SIGNIFICANT ACCOUNTING POLICES

IFRS 16 Leases

On January 13, 2016, the IASB issued IFRS 16. The new standard became effective for annual periods beginning on or after January 1, 2019. IFRS 16 replaces IAS 17, "Leases'' and related interpretations. The standard introduces a single on-balance sheet recognition and measurement model for lessees, eliminating the distinction between operating and finance leases. The lessee recognizes a right-of-use asset representing its control of and right to use the underlying asset and a lease liability representing its obligation to make future lease payments. Lessors continue to classify leases as finance and operating leases. Certain exemptions will apply for short-term leases and leases of low value assets.

The Company has adopted IFRS 16 as at January 1, 2019. The adoption of IFRS 16 did not have a significant impact on the Company's financial statements. Upon adoption, the Company has applied the following practical expedient:

- For leases for which the lease term ends within 12 months of the date of initial application, the Company has not recognized a lease liability or right-of-use asset. Instead, the Company accounts for those leases as a short-term lease and recognizes the lease payments associated with those leases as an expense on a straight-line basis over the lease term.

The Company applies the short-term lease recognition exemption to its short-term office leases (i.e., those leases that have a lease term of 12 months or less from the commencement date and do not contain a purchase option). Lease payments on short-term leases are recognized as expense on a straight-line basis over the lease term.

1.4 COMPANY OVERVIEW AND STRATEGY

ASSET ACQUSITION

On August 3, 2016, the Company entered into an Intellectual Property Assignment Agreement (the "IP Agreement") with Societe de Commercialisation des Produits de la recherche appliquee SOCPRA Sciences et Genie SEC ("SOCPRA") and its inventors by issuing a total of 6,000,000 common shares of the Company at a fair value of $0.05 per share, representing a total fair value of $300,000. The Company also reimbursed $13,838 to SOCPRA for the professional fees associated with the protection of the patent ("Acquisition").

1.4 COMPANY OVERVIEW AND STRATEGY (Continued)

ASSET ACQUSITION (Continued)

In August 2018, the Company received from the United States Patent and Trademark (USPTO), its first patent on a portion of its application. The Company also received a notice of allowance for the second patent, which was issued on January 1, 2019. Continuation requests have been filed for both patents in order to pursue the acceptance of the claims not accepted, which is why the Company's patents are still at the patent pending stage In the United States. Both applications are still under review with the European Patent Office. The Company's first patent was granted in full from Russia in December 2018.

Until the expiry of the last patent rights, the Company will pay to SOCPRA a royalty of 5% calculated on the net sales price of products sold by the Company. The royalty shall be calculated on a 12-month basis starting on the effective date and shall be paid by the Company to SOCPRA within 90 days following the expiry of each reference year. The Company may have an option to buy back the royalties in the future at terms and conditions to be agreed upon by both parties. Pursuant to the IP Agreement, if the Company did not find or develop a commercial application within three years, 50% of the intellectual property would be transferred back to SOCPRA. As the Company found a commercial application within three years, 50% of the intellectual property shall not be transferred.

The Acquisition was not considered to be a business combination and was accounted for as an asset acquisition. Total purchase price of $300,000, finder's fees of $30,000 (Note 6) and transaction costs of $116,112, which includes the reimbursement of $13,838 above, totalling $446,112, were capitalized to intellectual property.

INTELLECTUAL ACTIVITIES

Since Quantum Numbers Corp. changed its focus from mining to quantum hi-tech Intellectual Property, the primary management objective was to strengthen the Company in the following three sectors of activities:

Technology

In order to stay focused on our primary objective, which is to make our technology accessible as rapidly as possible to potential clients and partners, and secured regarding its effectiveness and ensuring that the Intellectual Property is well protected, we are closely working with l'École de Technologie Supérieure ("ETS") in order to maximize the potential and security of our technology. We are putting in place a program to develop complementary metal-oxide semiconductor ("CMOS") implementations with ETS to ensure a greater competitiveness. Subsequent to December 31, 2019, we were awarded a subsidy from the Quantum Province of Quebec program to develop 3 different CMOS implementations.

In regards to our second technology "Method and System for creating a Random Bit Sample", this technology is a method that quantifies the randomness of our signal, a perfect complement to our first technology.

Toward the end of 2019, we decided that it would be beneficial to work on a CMOS version. The Company filed a grant form with a new Provincial Program. The grant was accepted. However, the Company does not have all the details as of yet. The Company only knows that the grant covers between 40 and 60% of the eligible expenses.

1.4 COMPANY OVERVIEW AND STRATEGY (Continued)

INTELLECTUAL ACTIVITIES (Continued)

Patent

As the Company must obtain its Patent to pass the introduction level with potential clients, it was then decided to work with the Company's Patent Agent to assess the patentability of our technology. The Company received the final report that indicates that it should continue the National Phase as planned. By doing the legwork and research at the stage of the patentability report, the Company was able to respond rapidly to the European Patent Office ("EPO") investigator. Furthermore, that research also allowed us to develop a second Patent that the Company filed under a Patent Cooperation Treaty ("PCT") for the moment.

Status of patents

First Request Method for generating random numbers and associated random number generator

Country	Status
United States	Patent granted. A partial Patent was granted on August 7, 2018. The second portion was granted on October 8, 2019.
Russia	Patent granted on January 16, 2019.
European Patent Office	EPO granted the Patent on February 2, 2020, and the dispute period for all the countries will end on November 2, 2020.
Thailand	The deadline to request an examination report is November 15, 2022.
Australia, Canada, Brazil, India, Indonesia, Republic of Korea, Vietnam	For all these countries, we requested the examination, and we are awaiting the examiner's response.
China	The latest examiner comments were addressed on February 10, 2020. We are awaiting the examiner's response.

Second Request Method and system for generating a random bit sample

Country	Status
European Patent Office	EPO granted the Patent on October 23, 2019, and the dispute period for all the countries will end on July 23, 2020.
United States	Patent granted.
All countries covered under the Patent Cooperation Treaty	National phase entries are due by August 15, 2020. We will register in all the countries where our first patent was registered with the addition of Japan.

1.4 COMPANY OVERVIEW AND STRATEGY (Continued)

INTELLECTUAL ACTIVITIES (Continued)

Market

For the last two years, our resources and energy were focused on developing the position of the Company for success in the emerging Quantum Random Number Generator market. The National Institute of Standards and Technology Post Quantum Cryptography standardization committee is still working on the new standard and we are convinced to have the right attributes to fulfill the future requirements for the general market and be part of a highly competitive solution.

Subsequent to December 31, 2019, the outbreak of the novel strain of coronavirus, specifically identified as “COVID-19” had the effect of postponing the trade show that we wanted to be present at, as the GSMA MWC, as well as for the next quarter. For the moment, we are monitoring the situation and we do not have visibility when we can resume a physical presence in the trade shows.

Since March 2018, we have not seen any transaction of significant value in our market. In summary, we work closely with the ETS with respect to the technology and adaptation to the needs of potential clients. After reaching some milestones on that front, we will be in a position to propose a specific solution to potential niche clients.

In addition, since March 3, 2020, SK Telecom has been cooperating with companies including Telecom Italia, Telefonica and Ericsson on GSMA’s new work item ‘Quantum Computing, Networking and Security’. They are currently studying the future perspectives for quantum technology for mobile operators, and are at the stage, to plan to publish a white paper within this year to position quantum technology for future usage in 5G networks. We are monitoring their works.

1.5 HIGHLIGHTS

On February 20, 2019, the Company sold its right, title and interest in the Portage-du-Fort Property for cash consideration of $1. The Company will hold a 1.5% NSR and a 10% commission will be payable by the purchaser if the property is sold.

On April 1, 2019, Ghyslain Gagnon, professor at the ETS became a consultant for the Integration of our technology.

On June 25, 2019, a Notice of Allowance was issued for the US. Patent Application No.: 16/150,010 Title: Method and system for generating a random bit sample, which means that the patent was issued.

The Company reported a net loss and comprehensive loss of $663,318 in 2019 compared to a net loss and comprehensive loss of $916,042 in 2018.

As at December 31, 2019, the Company had net working capital of $251,199 (2018 - $914,839).

1.6 SELECTED ANNUAL INFORMATION

	Year ended December 31		
	2019	2018	2017
	$	$	$
Net loss and comprehensive loss for the year	(663,318)	(916,042)	(1,431,441)
Basic and diluted loss per share	(0.01)	(0.02)	(0.03)
Cash	287,631	909,500	1,189,371
Total assets	939,821	1,599,028	1,973,091
Total liabilities	46,787	62,750	157,487
Equity	893,034	1,536,278	1,815,604

Analysis 2019 compared to 2018

The total assets at December 31, 2019 of $939,821 decreased by $659,207 compared to $1,599,028 as at December 31, 2018. This decrease is attributable mainly to:

- A decrease in cash of $621,869 primarily used to fund operating activities.
- A decrease in taxes receivable of $45,167 offset by the increase in intellectual property of $20,396.

The decrease in equity is mainly due to the decrease in net loss and comprehensive loss.

Analysis 2018 compared to 2017

The total assets at December 31, 2018 of $1,599,028 decreased by $374,063 compared to $1,973,091 as at December 31, 2017. This decrease is attributable mainly to:

- A decrease in cash of $279,871 primarily used to fund operating activities of $871,769 offset by cash flows from financing activities from proceeds of warrants of $496,700.
- A decrease in investments of $170,000 resulting from the disposal of shares of St-Georges Eco Mining Corp.

1.7 OPERATING ACTIVITIES

The 2019 net loss and comprehensive loss decreased to $663,318 from a net loss and comprehensive loss of $916,042 in 2018 mainly due to decreases in share-based payments for an amount of $119,942, change in fair value of financial assets and liabilities at fair value through profit or loss for an amount of $48,155, consulting fees for an amount of $28,082 and development costs for an amount of $23,545.

1.8 INTELLECTUAL PROPERTY

The carrying amount can be analyzed as follows:

	Balance as at December 31 2018	Additions	Balance as at December 31 2019
	$	$	$
Cost			
Acquisition of SOCPRA license (Note 4)	446,112	-	446,112
Development costs	174,377	25,590	199,967
	620,489	25,590	646,079
Accumulated amortization			
Amortization	-	5,194	5,194
Carrying amount	620,489	20,396	640,885

In October of 2019, once available for use, the Company commenced amortizing the license on a twenty-year basis. No amortization was taken on the development costs as these assets are not yet available for use.

1.9 SELECTED FINANCIAL INFORMATION AND OPERATING RESULTS

	December 31 2019	December 31 2018
	$	$
Expenses		
Salaries	328,638	327,569
Travel	93,880	92,081
Development costs	84,034	107,579
Legal and audit fees	42,052	61,465
Professional fees	28,537	31,978
Office	23,716	25,132
Share-based payments	20,074	140,016
Filing and listing fees	18,058	29,311
Other expenses, net of other income	24,329	100,911
Net loss and comprehensive loss for the year	663,318	916,042
Basic and diluted loss per share	0.01	0.02
Weighted average number of common shares outstanding	60,527,838	60,352,715

1.10 SUMMARY OF QUARTERLY RESULTS

The following table sets forth selected quarterly financial information for each of the eight most recently completed quarters.

Three-month period ended	Net loss and comprehensive loss for the period	Basic and diluted loss per share
	$	$
December 31, 2019	(161,265)	(0.003)
September 30, 2019	(140,307)	(0.002)
June 30, 2019	(176,690)	(0.003)
March 31, 2019	(185,056)	(0.003)
December 31, 2018	(215,707)	(0.004)
September 30, 2018	(204,071)	(0.003)
June 30, 2018	(222,794)	(0.003)
March 31,2018	(273,470)	(0.005)

The net loss and comprehensive loss for the period ended December 31, 2019 increased by $20,958 compared to the period ended September 30, 2019. The increase resulted mainly from the increase in legal and audit fees and amortization offset by a decrease in development costs and travel.

1.11 LIQUIDITY

As of December 31, 2019, the Company had net working capital of $251,199 (2018 - $914,839). The Company intends to patent its technologies wherever it is required. In the meantime, to ensure sufficient cash flow until market readiness, the Company is looking at M&A transactions to achieve its objectives.

1.12 CASH FLOWS

The Company’s operating activities used $596,280 in 2019 compared to $871,769 in 2018. The decrease in cash flows used resulted mainly from a decrease in net changes in non-cash working capital items and in administration expenses.

The Company’s investing activities used $25,589 in 2019 compared to $95,198 generated in 2018. The decrease in cash flows generated resulted mainly from a decrease in proceeds from sale of investments.

The Company’s financing activities generated $nil in 2019 compared to $496,700 in 2018. The decrease in cash flows is mainly due to a decrease in proceeds from the exercise of warrants.

1.13 FOURTH QUARTER

During the three-month period ended December 31, 2019, the Company recorded a net loss and comprehensive loss of $161,265 compared to $215,707 for the same period in 2018, which represents a decrease of $54,442. The variance is mainly due to a decrease in consulting fees of $23,089, share-based payments for an amount of $18,671 and development costs for an amount of $17,779.

1.14 SHARE-BASED PAYMENTS

The Company's share options are as follows for the reporting periods presented:

	2019		2018	
	Number of options	Weighted average exercise price	Number of options	Weighted average exercise price
		$		$
Balance outstanding, beginning of year	4,480,000	0.20	4,880,000	0.19
Granted	150,000	0.15	-	-
Expired	(380,000)	0.12	(400,000)	0.10
Balance outstanding and exercisable, end of year	4,250,000	0.20	4,480,000	0.20
Balance exercisable, end of year	4,250,000	0.20	3,980,000	0.18

The weighted average remaining contractual life for options outstanding at December 31, 2019 is 4.68 (2018 - 5.53) years.

Outstanding and exercisable options are as follows:

	Exercise	2019		2018	
Expiry date	price	Number	Exercisable	Number	Exercisable
	$				
September 30, 2019	0.13	-	-	130,000	130,000
November 22, 2021	0.10	700,000	700,000	700,000	700,000
April 1, 2022	0.15	150,000	150,000	-	-
December 9, 2022	0.12	1,400,000	1,400,000	1,650,000	1,650,000
January 26, 2027	0.30	2,000,000	2,000,000	2,000,000	1,500,000
		4,250,000	4,250,000	4,480,000	3,980,000

1.15 WARRANTS

The changes in warrants during the years ended December 31, 2019 and 2018 are as follows:

	2019		2018	
	Number of warrants	Weighted average exercise price	Number of warrants	Weighted average exercise price
		$		$
Balance outstanding, beginning of year	-	-	18,101,000	0.10
Expired	-	-	(13,134,000)	0.10
Exercised	-	-	(4,967,000)	0.10
Balance outstanding, end of year	-	-	-	-

1.16 SUBSEQUENT EVENTS

In November 2019, the Company secured more than 99% of all claims in Europe with the upcoming second EPO patents and in January 2020, secured 98% of all claims in the USA with the granting of four of the USA patents.

In April, 2020, the special Quantum Technologies Program Grant offered by the Quebec Government has approved the Company's funding request for its complementary metal-oxide semiconductor (CMOS) initiative. As all the rules regarding the funding are not published as yet, the Company only knows that the grant will cover 40 to 60% of the eligible expenses.

In May 2020, the Company received the Canada Emergency Business Account loan for an amount of $40,000. This loan is interest-free until December 31, 2022 and 25% of the loan is eligible for loan forgiveness if 75% has been fully repaid on or before December 31, 2022.

Since December 31, 2019, the outbreak of the novel strain of coronavirus, specifically identified as "COVID-19", has resulted in governments worldwide enacting emergency measures to combat the spread of the virus. These measures, which include the implementation of travel bans, self-imposed quarantine periods and social distancing, have caused material disruption to businesses globally resulting in an economic slowdown. Global equity markets have experienced significant volatility and weakness. Governments and central banks have reacted with significant monetary and fiscal interventions designed to stabilize economic conditions. The duration and impact of the COVID-19 outbreak is unknown at this time, as is the efficacy of the government and central bank interventions. It is not possible to reliably estimate the length and severity of these developments and the impact on the financial results and condition of the Company in future periods.

1.17 OFF-BALANCE SHEET ARRANGEMENTS

The Company does not have any off-balance sheet arrangements.

1.18 FINANCIAL INSTRUMENTS

All financial instruments are recognized when the Company becomes a party to the contractual provisions of the financial instrument and are initially measured at fair value plus transaction costs, except for financial assets and financial liabilities carried at fair value through profit or loss, which are measured initially at fair value. Financial assets are derecognized when the contractual right to the cash flows from the financial assets expire, or when the financial asset and all substantial risks and rewards are transferred.

Please refer to Note 12 of the financial statements for an extended description of the Company's financial instruments and their fair values.

1.19 FINANCIAL RISK MANAGEMENT

In the normal course of operations, the Company is exposed to various financial risks. The Company does not enter into financial instrument agreements, including derivative financial instruments, for speculative purposes. Please refer to Note 12 of the financial statements for an extended description of the Company's main financial risks.

1.20 MANAGEMENT OF CAPITAL

The capital structure of the Company consists of equity attributable to common shareholders, comprising issued capital, share options reserves and deficit. The Company's objectives when managing capital are to: (i) preserve capital; (ii) obtain the best available net return; and (iii) maintain liquidity.

The Company manages the capital structure and makes adjustments to it in light of changes in economic conditions and the risk characteristics of the underlying assets. To maintain or adjust the capital structure, the Company may attempt to issue new shares. There were no changes to the Company's approach to capital management during the year.

The Company is not subject to externally imposed capital requirements.

1.21 RELATED PARTY TRANSACTIONS

The Company's related parties include companies under common control and joint key management, as described below.

Unless otherwise stated, none of the transactions incorporate special terms and conditions and no guarantees were given or received. Outstanding balances are usually settled in cash.

1.21 RELATED PARTY TRANSACTIONS (Continued)

TRANSACTIONS WITH KEY MANAGEMENT

The key management of the Company are the members of senior management and the Board. The remuneration for the year of key management include the following expenses:

	2019	2018
	$	$
Consulting fees	3,200	12,200
Legal fees	-	3,158
Salaries	314,400	312,000
Share-based payments	5,074	140,016
	322,674	467,374

An amount of $nil (2018 - $1,600) is due to directors for unpaid consulting fees and is included in accounts payable and accrued liabilities.

An amount of $2,400 (2018 - $nil) is due to directors for unpaid salaries and is included in accounts payable and accrued liabilities.

An amount of $2,392 (2018- $984) is due to directors for reimbursement of expenses incurred during the year ended December 31, 2019 and is included in accounts payable and accrued liabilities.

1.22 CRITICAL ACCOUNTING ESTIMATES

The critical accounting estimates are described in Note 2 of the audited financial statements.

1.23 CHANGES IN ACCOUNTING POLICY INCLUDING INITIAL ADOPTION

The company adopted IFRS 16 which is detailed in Note 3(n) of the audited financial statements.

1.24 OTHER

Disclosure of Outstanding Securities as at May 29, 2020.

Outstanding common shares: **60,527,838**
Outstanding options: **4,250,000**
Outstanding share purchase warrants: **nil**

(s) Jean-Charles Phaneuf, President and Chief Executive Officer

(s) Pierre Miron, Chief Financial Officer

Montreal (Quebec), May 29, 2020