MANAGEMENT'S DISCUSSION AND ANALYSIS

For the third quarter ended

September 30, 2022 and October 31, 2021

GENERAL

The following Management Discussion and Analysis of financial condition and results of operations ("MD&A") of NuRAN Wireless Inc. ("we", "us", "our", the "Company" or "NuRAN") for the nine-month period ended September 30, 2022 has been prepared by management and should be read in conjunction with the unaudited consolidated financial statements for the nine-month period ended September 30, 2022 and nine-month period ended October 31, 2021 and the related notes thereto. The Company's consolidated financial statements are prepared in accordance with International Financial Reporting Standards ("IFRS"). References to notes are with reference to the consolidated financial statements. Unless otherwise noted, all currency amounts are in Canadian dollars. These documents, as well as additional information on the Company, are filed electronically through the System for Electronic Document Analysis and Retrieval (SEDAR) and are available online at www.sedar.com.

Unless otherwise stated, this MD&A is prepared as of November 29, 2022

DISCLAIMER FOR FOWARD LOOKING STATEMENTS

This MD&A contains forward-looking statements. Often, but not always, forward-looking statements can be identified by the use of words such as "plans", "expects" or "does not expect", "is expected", "estimates", "intends", "anticipates" or "does not anticipate", or "believes", or variations of such words and phrases or state that certain actions, events or results "may", "could", "would", "might" or "will" be taken, occur or be achieved. Forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements of the Issuer (as defined herein) or NuRAN (as defined herein) to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements. Examples of such statements include: expectations regarding NuRAN's ability to raise capital, the intention to expand the business and operations of NuRAN and use of working capital and proceeds of capital raises. Actual results and developments are likely to differ, and may differ materially, from those expressed or implied by the forward-looking statements contained in this MD&A. Such forward-looking statements are subject to a number of risks as outlined below under "Risks and Uncertainties" and include risks such as the uncertainties regarding the impact of the COVID-19 outbreak, and measures to prevent its spread, risks relating to NuRAN's business and the economy generally; NuRAN's ability to adequately restructure its operations with respect to its new model of NaaS service contracts; the capacity of the Company to deliver in a technical capacity and to import inventory to Africa at a reasonable cost; NuRAN's ability to obtain project financing for the proposed site build out under its NaaS agreements with Orange, MTN and other telecommunication providers; the loss of one or more significant suppliers or a reduction in significant volume from such suppliers; NuRAN's ability to meet or exceed customers' demand and expectations; significant current competition and the introduction of new competitors or other disruptive entrants in the Company's industry; NuRAN's ability to retain key employees and protect its intellectual property; compliance with local laws and regulations and ability to obtain all required permits for our operations; access to the credit and capital markets; changes in applicable telecommunications laws or regulations or changes in license and regulatory fees; downturns in customers' business cycles; insurance prices and insurance coverage availability; the Company's ability to effectively maintain or update information and technology systems; our ability to implement and maintain measures to protect against cyberattacks and comply with applicable privacy and data security requirements; the Company's ability to successfully implement its business strategies or realize expected cost savings and revenue enhancements; business development activities, including acquisitions and integration of acquired businesses; the Company's expansion into markets outside of Canada and the operational, competitive and regulatory risks facing the Company's non-Canadian based operations. These forward-looking statements should not be relied upon as representing NuRAN's views as of any date subsequent to the date of this MD&A.

Although NuRAN has attempted to identify important factors that could cause actual actions, events or results to differ materially from those described in forward-looking statements, there may be other factors that cause actions, events or results not to be as anticipated, estimated or intended. There can be no assurance that forward-looking statements will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. Accordingly, readers should not place undue reliance on forward looking statements. The factors identified above are not intended to represent a complete list of the factors that could affect NuRAN. Such statements made by the Company are based on current expectations, factors and assumptions and reflect our expectations as at September 30th, 2022. Except as required by applicable law, we undertake no obligation to publicly update or revise any forward-looking statement, whether as a result of new information, future events or otherwise.

For a description of material factors that could cause the Company's actual results to differ materially from the forward-looking statements in this MD&A, please see "Risks and Uncertainties" below.

CORPORATE STRUCTURE

NuRAN was incorporated under the *Business Corporations Act* (British Columbia) on September 23rd, 2014. The Company was initially a wholly owned subsidiary of Bravura Ventures Corp. ("Bravura"). On October 14th, 2014, the Company entered into an arrangement agreement with Bravura and 1014379 B.C. Ltd., pursuant to which the shareholders of Bravura exchanged certain common shares of Bravura for common shares of NuRAN by way of a plan of arrangement (the "Arrangement") and NuRAN became a reporting issuer in the provinces of British Columbia and Alberta.

Following completion of the Arrangement, NuRAN entered into an amalgamation agreement dated March 11, 2015 with Nutaq Innovation Inc. ("Nutaq") and 9215174 Canada Inc. ("Newco"), a wholly owned subsidiary of NuRAN formed for the purpose of the amalgamation, pursuant to which Nutaq amalgamated with Newco and NuRAN acquired all of the issued and outstanding shares of the amalgamated company in consideration of 32,999,994 common shares of NuRAN based on a ratio of 2.749 NuRAN common shares for each share of Nutaq issued and outstanding on the closing date. Nutaq and Newco completed the amalgamation on June 2nd, 2015 and the amalgamated company was named "Nutaq Innovation Inc.". Following the closing of the transaction, NuRAN had 40,471,869 common shares issued and outstanding and former shareholders of Nutaq acquired 81.5% of the issued and outstanding common shares of NuRAN. Following closing of the Amalgamation, Nutaq Innovation Inc. was a wholly owned subsidiary of NuRAN and NuRAN operated the business of Nutaq.

Nutaq was incorporated under the laws of Canada on May 30, 2005 under the name "Lyrtech RD Inc.". Nutaq changed its name to "Nutaq Innovation Inc." on August 31, 2012; its registered and head office is located at 2150 Cyrille-Duquet Street, Suite 100, Quebec, Quebec G1N 2G3. On August 28, 2020 the Board of Directors of Nutaq voted to cease operations and on that date all of its board members, except Mr. Francis Letourneau, resigned their respective positions. On August 31, 2020 Nutaq announced the decision and filed an insolvency proceeding and on September 1, 2020 the Company approved the appointment of Lemieux Nolet as trustee for Nutaq's bankruptcy proceedings. At the same time trading of the Company's stock was halted.

On September 22, 2020, the trustee and Nutaq's first ranking secured creditors reached an agreement pursuant to which all of the assets of Nutaq, including all inventory, equipment and R&D equipment, trademarks, patents, accounts receivables, bank account and SR&ED credits would be sold. On October 27, 2020, the parent company re-acquired these Nutaq Assets for $100,000.

As a result of the insolvency proceedings, the Company eliminated/extinguished the obligation to repay certain creditors and recorded a $1.5 million gain on the extinguishment of liabilities. As well, the Company assumed all obligations of Nutaq.

In 2021, NuRAN incorporated two wholly owned subsidiaries, NuRAN Wireless Cameroon Ltd. and NuRAN Wireless DRC S.A.R.L.U., to own and manage the networks that the Company is developing in those countries.

NuRAN also incorporated on April 28, 2022 a subsidiary that will hold all of its African investments called NuRAN Wireless (Africa) Holding based in Mauritius. This subsidiary will raise debt and equity to fund the development and management of the African networks.

In 2021 NuRAN modified its bylaws to change its financial year-end from October 31 to December 31. The prior year was a transition year for the Company covering the 14 months ended December 31, 2021. As a result the nine month period then ended September 30, 2022 is compared to October 31, 2021 results.

The Company also completed the final step in unwinding the bankruptcy of its wholly owned subsidiary, Nutaq. NuRAN's proposal to creditors was accepted by the bankruptcy court on March 17, 2022 and a final payment of settlement made. On March 25, 2022, Nutaq received a Certificate of Full Performance of Proposal issued by the Licensed Insolvency Trustee and signifying that Nutaq is released from the debt included in the proposal.

DESCRIPTION OF BUSINESS

NuRAN is a leading supplier of mobile and broadband wireless infrastructure solutions. Its innovative radio access network (RAN), core network, and backhaul products dramatically reduce the total cost of ownership, giving mobile network operators (MNOs) the ability to profitably serve remote, low income and low population density locations, an unfeasible proposition with existing systems.

NuRAN's current business focus is to grow the market penetration of its Network as a Service (NaaS) offering, a communications solution whose backbone is its Wireless Infrastructure Systems (WIS).

NuRAN's WIS are mobile wireless infrastructure equipment (e. g. base station radios) that use proprietary breakthrough small cell solutions to offer better coverage, the lowest installed cost, the most efficient power consumption combined with leading technology for satellite bandwidth reduction usage currently available in the global marketplace.

Our design provides two key competitive advantages:

- Low total cost of ownership, a key feature for developing countries and rural/low population density areas, and
- Small footprint, easy to deploy private networks, customizable for large scale deployments such as rural mobile networks and specific markets such as defense, utilities, industrial and machine-to-machine ("M2M").

NuRAN's NaaS model leverages the capabilities of its WIS as well as its extensive expertise in building cost-effective cellular infrastructure. The model provides not only the network equipment, but NuRAN also finances, builds, operates and maintains the cellular sites in a very effective manner. Revenue to NuRAN comes in the form of either a revenue share with guaranteed minimum or threshold values, or fixed monthly payments. The NaaS model is receiving significant interest from MNO's as a carrier-grade mobile network infrastructure solution that allows them to continue focusing their capital expenditures on developing new technologies, while being able to reach previously uneconomic markets. Another reason for this growing interest in the NaaS is that it allows MNO’s to meet the obligations to serve remote communities, a requirement of their government licenses. The investment in the NaaS model is customer friendly but it also provides NuRAN with long-term recurring revenues resulting in a compelling return over contract periods which range from 5 to 10 years in length, and in the future will be indefinite length incorporating continued asset ownership by NuRAN.

NuRAN’s wireless infrastructure solutions are also capable of supporting mobile payment transactions, a tremendous social and economic benefit for those in the developing world where 95% of all transactions are cash and 60% of adults don’t currently have a bank account, as well a significant potential market for MNO’s.

By deploying communication infrastructure in uncovered areas, NuRAN also makes a very significant contribution to the socio-economic conditions of the areas it serves and meets a significant number of the seventeen sustainable development goals set by the United Nations. This includes improving the local economies and enabling access to e-learning, e-health and other social services not currently available to the local population.

GENERAL OBJECTIVES

The Company’s mission is to enable its clients to profitably connect the 4 billion people without broadband connectivity, including 1 billion people that do not have the benefit of accessing reliable telecommunications and power infrastructure.

The company delivers the world’s most affordable, lowest power consumption and easiest to deploy wireless solutions. NuRAN deploys its own breakthrough small cell solution in traditionally underserved and emerging markets, addressing the CapEx and OpEx challenges of operators, allowing Telcos to deploy profitably in the least population dense and most remote areas.

OVERALL PERFORMANCE AND OUTLOOK

Performance

During the nine-months ended September 30, 2022, the Company continued to execute on its strategy to become the supplier of choice to Mobile Network Operators (MNOs) across the world to connect remote and rural areas that until now could not take advantage of the economic and social benefits of connectivity.

Management’s decision to redirect NuRAN’s efforts to the NaaS market was made with the awareness that this would require considerable initial investments in marketing, branding, sales, field tests and to prepare for increased production as well as working capital and capital investments to fund the rollout and installation of networks. The recovery of this investment through recurring sustainable and more predictable revenues is starting to show. In fact, performance of sites that are currently in operation have shown both rapid uptake and average performance that either meets or exceeds the Company’s business plan objectives on a per site basis.

In spite of the longer than expected timeframe in the rigorous qualification processes that MNO’s required to obtain approval of NuRAN’s equipment and operating procedures prior to endorsing the use of our systems, the contracts executed to date, those currently being negotiated, and the growing sales pipeline confirms management’s vision.

The Company's ongoing investments in research and development, engineering and manufacturing have been rewarded with the acknowledgment by leading industry organizations and participants that NuRAN's Wireless Infrastructure Solutions are "at the top of their class".

In addition, NuRAN's marketing and branding efforts as well as the performance of the sites installed to date have significantly increased the market's awareness of its wireless solutions.

The economic disruption caused by the pandemic created additional challenges for NuRAN: obtaining supplies in a timely basis, revamping operational procedures to ensure the safety of our staff and an elongated decision-making by some of our financing partners and customers to name a few. The Company addressed these challenges: our people have worked relentlessly to methodically recover the site development delays and we also strengthened our supply chain adding as many African suppliers as possible. The pandemic has also positively impacted the growing demand of connecting the unconnected.

That said we did encounter some issues exacerbated by the pandemic and restricted travel specifically related to physical inventory counts at year-end 2021. It being the first year of deploying NaaS, we faced challenges in achieving the necessary level of accuracy and cutoff between periods and in stock versus deployed equipment. Because this equipment is sourced from global suppliers, held in various locations throughout the supply chain and our own stocks, the classification of assets was more complex than anticipated. This meant our auditors were unable to perform the required confirmation and as a result our year-end 2021 statements were qualified as to the inventory value. However, subsequent to the year end, management was able to provide the auditors with the necessary information and the qualification was removed. Amended December 31, 2021 financial statements were filed on June 27, 2022 and there were no material changes in these amended statements. Management's plan to resolve the situation is underway and includes the implementation of a companywide, global Enterprise Resource Planning (ERP) system, the implementation of stringent policies and procedures and the training of local staff dedicated to maintaining the integrity of all financial information and systems.

The Company had in place the financing for the initial 122 sites of the Cameroon project and raised $4 million in 2021 for the deployment of 118 sites in DRC. During the year NuRAN announced final approval of loan facilities with a total value of US$ 27 million from two European development finance institutions (DFIs). These, alongside US$ 6 million of equity contributed by the Company will fund the rollout of 852 additional sites bringing the total deployed to 1,092 sites. All that remains in drawing down these funds is the signing of definitive documentation and customary Conditions Precedent (CPs) for loans of this nature. The execution of the loan documents is expected to take place before the end of 2022 with the first draw to take place shortly thereafter. The loans shall be drawn down in up to 6 tranches over a period of 36 months. Management expects to use the funds within the next year to accelerate site deployment subject to adhering to loan covenants.

As a next step, NuRAN management is in the process of raising additional funds including both equity and debt to support this rollout and a second stage of rollout of sites under new contracts recently announced or pending. Discussions have been opened with a number of parties including several that were confirmed at the recent AfricaCom conference. Investors and lenders are at various stages of engagement and due diligence discussions continue. Management favours debt finance at the African Holding level as a non-dilutive source of capital for its NaaS ambitions and will support this with equity representing between 35 and 40% of the overall capital structure.

Operational and Business Highlights:

NuRAN announced that its expectations for deployment during 2022 were subject to the drawdown of DFI financing. This recognized that, despite delays due to worldwide supply chain issues, technical and performance issues, the Company had the staff in place supported by trusted partners to expand the NaaS footprint by an appreciable margin in 2022. The Company expects its previously announced target of 400 sites to slip into the second quarter of 2023.

As at the date of these financial statements, NuRAN has 4,142 Network as a Service ("NaaS") sites under contract with Orange Cameroon, Orange Democratic Republic of the Congo (DRC), MTN South Sudan, MTN Namibia, MTN Sudan and MTN Ivory Coast for a potential total contract value of over US$ 711 million. Following the announcement on July 21, 2022 of NuRAN's entry into a Group Framework Agreement ("GFA") with MTN Group (JSE: MTN) for up to 19,000 network sites in over 15 countries in the Middle East and Africa, the Company has been successful in engaging with a number of MTN operating companies. Management expects to bring a number of additional contracts with MTN which will move the Company closer to meeting its objective of 10,000 sites under contract.

With 4,142 sites under contract from which 1,092 sites are covered in the Phase 1 DFI loan package, the finance team have initiated a Phase 2 Funding for over 1,400 additional sites. Since the 10,000 sites rollout objective may require over US$ 180 million of capital, the Company will be working on several funding phases. Management reports high interest from other DFIs, including the current DFIs, in participating in Phase 2.

There is no assurance the Company will reach the target of 10,000 sites under contract as planned or at all and the estimates above are subject to the risk factors and assumptions set out below under "forward looking statements".

Managements' belief in the increasing adoption of the NaaS model by MNOs and NuRAN's ability to efficiently and effectively manage the rollout of NaaS contracts is supported by a number of achievements:

- On April 14, 2022, the Company announced a contract with MTN in Namibia to deploy suburban and rural telecom sites for a minimum of 150 sites. All the sites delivered will be in 4G demonstrating the evolution and expandability of its NaaS model and once the project is completed annual revenue will be $8 million.

- The Company continues to execute on its $4.75 million contract with Intelsat for the delivery and installation of NuRAN's Wireless Infrastructure Solutions to expand and enhance mobile connectivity services to the Marshall Islands. The work started in 2020 and, despite delays caused by the pandemic, to date approximately 54% of the contracted services have been delivered with further site deployment underway as at today's date. The final phase of the program is expected to be delivered in early 2023.

- NuRAN completed the site build of its project in Ghana for Vodafone financed through a GSMA Connected Society Innovation Grant for rural connectivity. The Company is now managing daily operations, monitoring, and maintenance of 7 sites in Ghana with 3G capability added to 4 sites. Vodafone will take over the 7 sites and discussions are ongoing to grow our rural footprint under a NaaS agreement. The government has already disclosed their objective to deploy more than 2,000 sites in Ghana and an agreement could have a significant impact on our 10,000 sites objective.

- On May 10, 2022, the Company confirmed its selection for 500 sites in a new country with another Tier-One Operator. Contract negotiations are on-going and expected to conclude in early 2023.

- On June 15, 2022, NuRAN announced the appointment of Mr. Hassan Kabbani to the Board of Directors of the Company. Mr. Kabbani is seasoned senior telecoms expert with more than thirty years of experience in the industry and extensive experience in business strategy, P&L management, business development and transformation. He has successfully led several large telecom organizations in multiple countries, including Zain, Orange, Orascom Telecom and Telecel International and is a member of the Board of several other companies in the mobile or tower space.

- On July 21, 2022 and subsequent to its earlier announcement, the Company announced the signing of the Group Framework Agreement (GFA) with MTN Group as mentioned above which offers the potential to connect up to 50 million additional people. On July 26, 2022 NuRAN announced its first signing following the GFA of definitive 10 year NaaS contract with MTN Sudan Company Ltd. for the deployment of a minimum of 500 rural sites in Sudan. The agreement is estimated to generate up to approximately US $125 million in revenues over its life and will support 2G and 3G. The Company expects to retain the ownership of the infrastructure beyond the 10-year period providing site operations and maintenance services and this continuing revenue generation significantly increases the value of the agreement to NuRAN and its shareholders.

- On August 11, 2022, NuRAN announced an important reorganisation of staff including the appointment of Christian Marcoux as Managing Director of Corporate Operations and George Benson as Director of Operations for Africa. Both are experienced senior executives with extensive experience in their areas of responsibility. Mr. Marcoux, based in Quebec, has 28 years of experience in technology and holds a Bachelor of Engineering degree. Mr. Benson, based in South Africa, is highly experienced in mobile network deployment and project engineering having held number of positions spanning the globe. At the same time the Company announced the departure of Gael Campan and Badi Abdallah from NuRAN.
- On October 11, 2022, the Company announced its second largest contract in terms of number of sites with an agreement for the rollout of up to 1,000 sites with MTN Ivory Coast. Over the 5-year period of the agreement, gross revenue is expected to be over US$ 75 million. The contract includes an automatic renewal for an additional 5 years and similar to the previously announced MTN Sudan and MTN Namibia agreements, NuRAN expects to retain the ownership of the infrastructure after the completion of the contract. This shift in business model to the ownership of infrastructure with no handover to the MNO potentially increases the value of the agreement substantively by providing a continuous revenue stream.

- The Company has now begun business development activities in Latin America and is evaluating several opportunities in Peru, Brazil, Ecuador and Mexico.

- The United States Patent Office granted the Company with a patent related to 5G Massive MIMO.

- NuRAN intends to perform 3G and/or 4G pilots using its LiteRAN xG solution in Cameroon and DRC during the second quarter of 2023.

Some of the financial achievements that support management's belief in its ability to complete the building of the networks currently under development and those being negotiated include:

- On January 6, 2022, the Company announced the signing of an agreement in principle with a development finance institution (DFI) for a senior secured credit facility of up to US$ 15 million ("Facility One") to finance a portion of NuRAN's network infrastructure installations being rolled-out in Cameroon and in the Democratic Republic of the Congo (the "Project"). Facility One is conditional on, amongst other customary conditions in a financing of this nature, NuRAN raising the remainder of the US$ 15 million in funding for the Project, the lender's due diligence and customary conditions, events of default and covenants. Facility One is for a term of seven years including two-year grace period on repayment of principal, and disbursements may be requested for up to 36 months from closing. Interest is to be paid at either a fixed or floating rate as specified by the Borrower for each tranche.

- On January 14, 2022, the Company signed a second mandate letter for another senior secured credit facility ("Facility Two") with another DFI that provides up to EUR 8 million in total funding to further finance the Project. Facility Two is conditional on, amongst other customary conditions in a financing of this nature, NuRAN raising the remainder of the funds required for the Project, the lender's due diligence and customary conditions, events of default and covenants. Facility Two is for a term of seven years including a two-year grace period on repayment of principal, and disbursements may be requested up to 36 months from closing. Interest is to be paid at a rate that is calculated based on a margin over six months EURIBOR.

- On June 15, 2022, NuRAN announced that its auditors were submitting a revised audit report to the British Columbia Securities Commission (the "BCSC") which subsequently led to the formal revocation of its cease trade order (CTO) on June 29, 2022. At the same time the Company extended the exercise period of 450,000 unexercised common share purchase warrants issued pursuant to a private placement which closed on December 15, 2020. The exercise of these warrants provides additional working capital.

- On July 12, 2022, the Company announced that it had received final approval of the EUR 8 million facility known as Facility Two from the second DFI Lender.

- Also on July 12, 2022, following revocation of the CTO, the Company announced the closing of a non-brokered private placement of convertible debentures with a strategic investor for aggregate gross proceeds of $2,000,000. The debentures have an original issuance discount of 10% and the principal of $2,222,222 is convertible into shares at a fixed price of $1.35. The principal amount is due one year from the date of closing and does not bear interest until the maturity date or an event of default. The investor also received 1,481,481 warrants to acquire one common share at an exercise price of $2.00 for a period of 24 months. The debentures may be prepaid by the Company by paying a price equal to 103% of the amount then outstanding. As a condition of closing, NuRAN entered into a sales agreement with the investor engaging it as its exclusive transmission equipment provider for its African operations.

- NuRAN also announced that following completion of all recent equity and bridge financings, including the financing completed with Space-Communication Ltd. in 2021, the Company has met the pre-closing condition under the DFI Loan Facilities of contributing US$ 6 million of equity required for the first drawdown.

- On August 22, 2022, the Company announced the restructuring of the secured convertible debenture financing closed on March 17, 2022 in the principal amount of $2,222,222. The lenders agreed to extend the maturity date to August 19, 2023 and advance an additional $900,000 in principal to NuRAN. The restructuring gives the Company the flexibility to either convert or repay the obligations and thereby manage the financial impact in the period leading up the closing of the non-dilutive DFI Loan Facilities. The restructuring meant that prior secured debentures, related security agreements and previously issued warrants were cancelled and the following were issued: (i) secured convertible debentures in an amount of $3,517,512 with a blended conversion price of approximately $0.905 representing a 25% premium to the 5 day volume weighted average price of NuRAN's shares subject also to an adjustment mechanism.;

(ii) 2,694,667 share purchase warrants with an exercise price of $1.10 until August 19, 2025; and (iii) 153,954 bonus common shares of the Company. The debentures may be prepaid by the Company, upon ten business days' notice, subject to paying 103% of the principal amount. The Company also agreed to settle outstanding fees of $220,979 by issuing a new debenture in the same principal amount, 205,333 New Warrants, and 28,886 bonus shares. Subject to closing of the DFI Loan Facilities and the conversion rights of the debenture holders, the Company intends to repay the debentures prior to maturity. Any securities issuable upon conversion or exercise of the debentures held by individual debenture holders, warrants, and bonus common shares are subject to a statutory hold period of four months and one day from August 19, 2022.

- On September 23, 2022, the Company announced that the European Investment Bank (EIB), the lender behind Facility One above, publicly announced its proposed financing via publication on its website. The financing, originally for US$ 15 million, was increased to US$ 18 million and falls under the Covid-19 Digital Africa Loan Envelope. Later on October 6, 2022, NuRAN announced that the EIB had granted formal approval of Facility One after extensive project due diligence as well as a number of other requirements completed over a number of months. This, along with the approval of Facility Two, was a major milestone for the Company clearing the way for completion of the financing to be used for project expenditures relating to the installation of network infrastructure and roll out of up to 242 rural sites in Cameroon and 850 sites in DRC.

Development Finance Institutions (DFI) Loan Facilities

Approval of the above announced Development Financial Institution ("DFI") Loan Facilities represented a significant effort on the part of NuRAN management spanning several months and a number of operating areas:

- Country visits were completed by the DFI lenders with a focus on NuRAN's operations and suppliers. They met the NuRAN team, Orange S.A.as well as regulatory bodies and government ministries.
- NuRAN has progressed significantly on a number of Environment and Social Governance (ESG) initiatives in order to meet the conditions precedent to the initial drawdown of the financing. This includes Environmental and Social Impact Assessments in DRC on all sites including those to be built in the near future, a comprehensive Environmental and Social Management System (ESMS) to be adopted across the Company globally in all operations and finalization with local regulators on the ESG approach and requirements going forward. NuRAN local staff are also being trained in ESG compliance requirements and processes.
- On April 28, 2022 NuRAN completed the incorporation of its wholly owned subsidiary, NuRAN Wireless (Africa) Holding, domiciled in Mauritius. The subsidiary will be the recipient of the DFI Loan Facilities as well as equity capital from third party investors. The Company has exceeded the required equity commitment of US$ 6 million which clears the way for the first drawdown when all other conditions of the loan are met.
- NuRAN amended the terms with one of the DFI lenders to increase its overall loan amount from US$ 15 million to US$ 18 million on the same terms as previous disclosed to help accelerate its funding plans. The overall favorable terms of the loan means much less of a burden on the Company's borrowing capacity as it progresses through subsequent phases of borrowing and rollout.
- Prior to the receipt of formal approval of both facilities, the Company initiated the process of preparing definitive agreements for the Loan Facilities.
- Management met with representatives of both DFIs at the AfricaCom conference held in Cape Town from the 8th to the 10th of November. Discussions were held of pending conditions for the loan drawdown and progress against each of these as well as closing timetable. The negotiation of the loan documentation is

in its last stages and the closing of this financing is expected to take place before year end with the first advance to follow shortly.

Equity Investments Supporting Development Finance Institution (DFI) Financing

NuRAN continues to negotiate on proposals received from Investment Funds targeting emerging market infrastructure and energy investments and will disclose amounts and terms once signed. These investments will be in NuRAN's newly formed African subsidiary and could exceed US$ 20 million and help support further loan finance. The amount could come by way of a number of alternative structures and would allow the company to meet the conditions of further drawdowns under the US$ 27 million DFI Loan Facilities. It will also support the next phase of loans from DFIs and other lenders. This second phase is planned to continue the rollout in DRC as well as the contracts in South Sudan, Namibia, Sudan, Ivory Coast and others in the sales pipeline.

The above progress and achievements reinforce management's belief in the success of the Company's strategic shift and its belief that NuRAN is positioned to become the market leader in this very important and growing space and deliver strong returns to its shareholders.

Outlook

NuRAN's wireless infrastructure solutions have long been deployed by MNOs as an integral part of their network operations and now under the NaaS model in extending rural coverage. NuRAN solutions are being either tested or operated by MNOs in more than 20 countries across Southeast Asia, Africa, South America and Latin America. NuRAN has also established alliances with other key industry participants such as tower and power companies to further increase its market reach. Management believes that the successful acceptance and adoption of NuRAN's system by MNOs and partnerships with key industry players place NuRAN in a position to generate significant sustainable business.

NuRAN previously announced that development is underway on LiteRAN xG, a mobile wireless infrastructure solution that will provide operators with 2G, 3G, & 4G capability from a single piece of equipment allowing them to run multiple technologies simultaneously and evolve their services over time. Deployment will proceed with Intelsat and the GSMA program in Ghana. The addition of LiteRAN xG to the Company's portfolio significantly widens the Company's addressable market.

The market adoption of NuRAN's NaaS offering is gaining traction, as demonstrated by the latest signing of a 1,000 site contract in October 2022 with MTN Ivory Coast, the second largest contract after the 2,000 site contract with Orange in DRC. This brings the total sites under contract to 4,142 including Orange SA In Cameroon and MTN Group in South Sudan, Namibia and Sudan.

The additional contracts with MNOs and the signature of the GFA with MTN Group is recognition of the quality of NuRAN's carrier-grade mobile network infrastructure solutions, its extensive expertise in the installation and management of cost-effective cellular networks as well as the economic benefits of being able to reach a large base of customers not reachable to date that NuRAN's systems provide.

The following discussion of the Company's financial performance is based on the condensed interim consolidated financial statements for the third quarter ended September 30, 2022 and the nine-month period ended October 31, 2021.

Factors Concerning the Company's Financial Performance and Results of Operations

To evaluate the results of the strategic shift, management closely monitors four key measures of the Company's performance: Revenue, Gross Profit Margins (GPM), Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA) and Net Income.

Revenue growth measures the success of the NaaS solution combined with our marketing and sales efforts. Growth is representative of the Company's ability to enter into contracts, build NaaS infrastructure, penetrate new markets and gain new customers for existing and new products and services. The investments in marketing and sales and the new products launched since 2016 have increased our sales pipeline, started to generate sales with first sites live and should produce increasing revenues as rural subscribers in previously covered and uncovered areas take advantage of more choice, availability and variety of mobile services to improve their economic position. The take-up of NaaS solutions and the resultant recurring revenue stream brought on by each live site will generate transformative growth in revenue for the Company.

GPM measures how efficiently and effectively NuRAN delivers its systems and services to its clients, both in terms of production of its product line, and increasingly, delivery of the NaaS solution in rural areas and direct costs incurred in local subsidiaries.

Our NaaS agreements were designed to minimize our risk by ensuring a reasonable return on each site through the minimum guaranteed monthly fee which covers direct operating expenses, capital repayment and interest. The revenue share above this level and included in all contracts provides additional revenue-generating potential.

Due to the interpretation of the terms of our NaaS agreements under IFRS, we record the sale of each site in Cameroon and DRC at the time the site becomes operational, rather than at the time the ownership of the site is transferred to the MNO (5 to 7 years from the date a site becomes operational).

This includes a large proportion of the guaranteed monthly fee which covers the capital cost of initially deploying the site. As a result, our monthly GPM is unduly reduced. Early-stage rollout will severely impact overall GPM due to this recognition of the sale of equipment. As a result, to properly monitor the Company's operating performance, management will be monitoring three GPM indicators for NaaS: one on the sale of the site, another on the income from revenue share and services and a third on the site's monthly operational fees.

EBITDA measures the entire operations by including selling and administrative costs. It should increase as sales grow.

Management believes that net income is a measure of how efficiently and effectively the business is running, however recognises that, given the stage of NaaS rollout and implementation, it is likely to be loss-making for some time. To achieve an acceptable net income, the company needs to significantly increase its revenues, while maintaining or slightly increasing its selling and general administration costs and efficiently utilising the capital assets that it deploys, including the NaaS model.

In spite of incurring losses, management has focused on improving the balance sheet. Following the positive steps taken in 2021 including the forbearance agreement and settlement of convertible and long term debt in the first half of the year, followed by the private placement in July, significant investments were made in NaaS infrastructure. This paved the way for the DFI financing and resultant bridge financing which all went towards building the NaaS infrastructure and future growth in 2023.

The Company unwound the bankruptcy of Nutaq during the year which resulted in the recognition of an accounting loss on debt settlement but preserves the availability of existing tax losses to be applied against future profits of the NaaS operations. Also in 2022 the provision for deferred tax was reversed. These steps streamlined the balance sheet enabling future borrowings which are non-dilutive for investors and tap into ready sources of debt for development funding in Africa.

SELECTED ANNUAL FINANCIAL INFORMATION

The following is selected financial data derived from the third quarter consolidated financial statements of the Company as at September 30, 2022 and October 31, 2021 and for the periods then ended:

	Three-months ended September 30, 2022	Three-months ended October 31, 2021	Nine-months ended September 30, 2022	Nine-months ended October 31, 2021
Total revenues	$ 1,625,652	$ 519,061	$ 3,730,808	$ 936,913
Total loss	$ (2,556,832)	$ (5,018,582)	$ (8,369,386)	$ (11,451,892)
Net loss per share – basic	$ (0.08)	$ (0.24)	$ (0.25)	$ (0.48)
Net loss per share – diluted	$ (0.08)	$ (0.24)	$ (0.25)	$ (0.48)

	Nine-months ended September 30, 2022	Nine-months ended October 31, 2021
Total assets	$ 18,264,093	$ 17,607,971
Total non-current financial liabilities	$ 444,663	$ 1,842,284

RESULTS OF OPERATIONS

Revenue

The $2,793,895 increase in revenue for the nine-month period then ended September 30, 2022 compared to the nine-month period then ended October 31, 2021 ($947,953 decrease for the nine-month period then ended October 31, 2021 compared to the nine-month period then ended October 31, 2020) results mainly from the continuing shift in focus to the NaaS model. The total $3,730,808 in revenue includes $1,740,893 for the sale of NaaS sites and $301,648 of services revenue during the period. Also included is approx. $900k of revenue from the Marshall Islands contract that was previously deferred. The recognition of the sale of sites is required by IFRS 15 as described above and after the rollout is completed the amount of services revenue will generate stable, predictable and recurring revenue for the Company.

Gross Profit
Gross profit for the nine-month period then ended September 30, 2022 increased by $1,362,920 compared to nine-month period then ended October 31, 2021 (decreased by $102,773 for the nine-month period then ended October 31, 2021 compared to the nine-month period then ended October 31, 2020).

Gross margin for the nine-month period then ended September 30, 2022 increased to 42% from 23% for the nine-month period then ended October 31, 2021 (increased to 23% for the nine-month period then ended October 31, 2021 from 17% for the nine-month period then ended October 31, 2020).

The overall gross margin was improved by the recognition of previously deferred revenue for which minimal costs were incurred during this year. This improvement was offset somewhat by the low margin from the sale of NaaS sites.

As sites mature services revenue increase at a faster rate than the related operating costs (including site leases, insurance and VSAT minimum costs) and our operating margin increases. In the aggregate the impact of our current business model is a positive shift in overall gross margin, which is currently negatively impacted by, the elimination of the previously available Covid government subsidies

Expenses
During the nine-month period then ended September 30, 2022 total expenses decreased by $2,339,889 from the nine-month period then ended October 31, 2022 (for the nine-month period then ended October 31, 2021 total expenses increased by $9,090,854 from the nine-month period then ended October 31, 2020). A large proportion of the expense reduction is accounted for by lower non-cash charges for share-based compensation for the Company's senior executives, staff and consultants. This was offset by increased financial expenses, mainly as a result of booked losses on foreign exchange. Other costs including Selling, Administrative and R&D expenses increased as the overall scale of the Company's operations across Africa and elsewhere expanded. In addition, the Company continues to incur costs to support the on-going financing initiatives.

Net Loss Before Other Elements and Income Taxes
As a result of all the factors mentioned above the Net Loss Before Other Elements and Income Taxes for the nine-month period then ended September 30, 2022 decreased to $7,756,608 from the nine-month period then ended October 31, 2021 loss of $11,459,417 (for the nine-month period then ended October 31, 2021 total Net Loss Before Other Elements and Income Taxes increased to $11,459,417 from the nine-month period then ended October 31, 2020 loss of $2,265,790).

Other Elements
Other Elements for the nine-month period then ended September 30, 2022 generated a net loss of $612,778 compared with a net gain of $7,526 in the nine-month period then ended October 31, 2021 (a net gain of $7,526 for the nine-month period then ended October 31, 2021 compared to a net gain of $584,899 for the nine-month period then ended October 31, 2020). This loss related to charges for the debt settlement in shares.

Net Loss and Total Comprehensive Income
As a result of all the factors mentioned above the Net Loss and Total Comprehensive Income for the nine-month period then ended September 30, 2022 decreased to $8,369,386 from the nine-month period then ended October 31, 2021 loss of $11,451,892 (for the nine-month period then ended October 31, 2021 increased to $11,451,892 from the nine-month period then ended October 31, 2020 loss of $1,700,891).

Expenses

Below is a discussion of the expenses for the nine-month period then ended September 30, 2022 and the nine-month period then ended October 31, 2021

	2022	2021	% change from 2021
Selling expenses	1,106,125	747,023	+48.07%
Administrative expenses	5,037,202	4,735,629	+6,37%
Employee share-based compensation	1,555,225	5,749,974	-72.95%
Financial expenses	1,295,135	298,122	+334,43%
Research and development costs	343,787	146,615	+134.48%
	9,337,747	11,677,364	-20.04%

Selling expenses

Selling expenses consist of salaries to sales and marketing staff, commissions on sales, travel expenses, trade shows and presentations. The increase is a result of increased headcount including regional sales reps focused on MNO clients, commissions payable on recognized revenue as well as increased advertising and promotions activity aimed at increasing the recognition of the company brand and positioning.

Administrative expenses

Administrative expenses consist of remuneration, legal fees, audit and accounting fees, insurance, rent, consulting fees and general office expenses. The increase in administrative expenses is due mainly to audit costs associated the 14-month audit resulting from the change in fiscal year end and the extra work associated with the inventory verification issue previously mentioned, fund-raising including bridge financing and the DFI financing and other borrowing facilities to fund the rollout of NaaS, and tax planning and other administrative work to set up our African holding subsidiary to enable the DFI financing.

Financial expenses

Financial expenses consist of bank charges, convertible debenture and lease interest, charges associated with short term financing and gain/loss on foreign exchange. The increase in financial expenses for the nine-month period then ended September 30, 2022, compared to the nine-month period then ended October 31, 2021 is mainly a result of exchange rate losses.

Research and development

Research and development costs for the nine-month period then ended September 30, 2022 have increased from the nine-month period then ended October 31, 2021 as the Company focused it's R&D efforts including the use of external contractors. The Company has $109,105 of Scientific research and experimental development tax credits receivable as at September 30, 2022. Generally, it recovers approximately one third of its R&D expenses through tax credits.

SUMMARY OF QUARTERLY RESULTS

Three Months Ended	Total revenues ($)	Total profit (loss) ($)	Basic and Diluted Loss Per Share ($)
30-09-22	1,625,652	(2,556,832)	(0.08)
30-06-22	231,128	(2,319,909)	(0.07)
31-03-22	1,881,960	(3,249,229)	(0.10)
31-Dec-21 (Two months)	730,297	97,984	(0.00)
31-Oct-21	519,061	(5,018,582)	(0.24)
31-Jul-21	7,363	(5,316,766)	(0.23)
31-Apr-21	410,488	(1,116,545)	(0.06)
31-Jan-21	470,407	(1,364,190)	(0.09)
31-Oct-20	132,797	(753,800)	(0.08)

Third quarter

During the three months ended September 30, 2022, the Company earned revenues of $1,625,652 compared to $519,061 during the three months ended October 31, 2021, an increase of $1,106,591. This consisted mainly of fixed equipment and variable sale revenues on NaaS sites and recognition of previously deferred revenue from our Marshall Islands contract. The Company also realized almost $200k of traditional equipment sales which are still made on a limited basis to 3rd party customers.

During the three months ended September 30, 2022, the Company incurred a gross profit of $1,213,694 compared to gross profit of $186,378 for the three months ended October 31, 2021. The majority came from the recognition of the above mentioned deferred revenue.

LIQUIDITY AND CAPITAL RESOURCES

The Company's cash decreased to $73,281 as at September 30 2022, from $3,185,469 as at October 31, 2021. Current assets increased to $11,217,598 as at September 30, 2022, from $11,052,943 as at October 31, 2021 mainly due to the increase in Inventories of equipment which was acquired during the period and was not yet deployed on operating sites.

In addition trade receivables and accrued revenue also increased as a result of higher service revenues and the sale of the operating sites, which will be collected over time.

The cash position as at September 30, 2022 reflected the spending on NaaS infrastructure during the period as the Company maintained the rollout as much as possible during the completion of steps towards the closing of DFI financing. Given the stage of the Company in beginning to deploy NaaS sites it expects to be in a loss position for the foreseeable future.

Future Financing

Management closely monitors the Company's current cash position and the short-term and long-term cash requirements and recognizes the need for improved cash flow and liquidity for future operations and growth. The

Company will look for additional financing for costs related to operations and its growth strategy (including the purchase of new equipment, continuous development of next generation wireless solutions such as the multi-Standard 2G, 3G, 4G platform, as well as the deployment of mobile infrastructure under the NaaS model).

Current inflows are not sufficient to cover its selling, administrative and R&D costs and finance the capital investment necessary to implement it NaaS contracts. The Company will continue to depend on its ability to convert its sales opportunities into purchase orders (for example the recently signed agreements with Orange SA for Cameroon and DRC and with MTN for South Sudan, Namibia, Sudan and Ivory Coast), raise debt to finance NaaS projects and future equity issuances or other means to finance its operations, including funding into NuRAN Mauritius.

The ability of the Company to continue operating will therefore be dependent upon obtaining additional financing as required. The timing and ability to do so will depend on the liquidity of the financial markets as well as the acceptance of investors, in addition to the results of the Company's operations. Although management believes that the company will be able to raise the necessary financing, and that its financial position has improved, there can be no guarantee that these efforts will be successful.

RISKS AND UNCERTAINTIES

Additional Financing Requirements and Access to Capital

NuRAN's ability to realize its assets and discharge its liabilities depends on the continued financial support of its shareholders, the growth and profitability of the future sales of its products and services and from obtaining additional financing.

Sales Risks

NuRAN's sales efforts target large corporations that require sophisticated data capture and production execution systems to collect and analyze data relating to various operational activities. NuRAN spends significant time and resources educating prospective customers about the features and benefits of its solutions. NuRAN's sales cycle usually ranges from 3 to 18 months and sales delays could cause its operating results to vary. NuRAN balances this risk by continuously assessing the condition of its sales pipeline and making the appropriate adjustments as far in advance as possible. NuRAN's strategy also includes a comprehensive program to build and improve relationships with long-standing customers to better understand needs and proactively manage incoming business levels effectively.

Foreign Exchange Risk

NuRAN's sales are mainly outside Canada and are generally conducted in currencies other than the Canadian dollar, while a majority of our product research and development expenses, integration services, customer support costs and administrative expenses are in Canadian dollars. Fluctuations in the value of foreign currencies relative to the Canadian dollar can negatively, or positively, impact NuRAN's financial results. The company monitors this risk and will enter/consider entering into forward/ derivatives contracts to minimize the exposure.

Outsourcing Risk

NuRAN outsources the manufacture of its products to third parties. If they do not properly manufacture the products or cannot meet the needs in a timely manner, NuRAN may be unable to fulfill its product delivery obligations and its costs may increase, and its revenue and margins could be negatively impacted. The Company's reliance on third-party manufacturers subjects it to a number of risks, including the absence of guaranteed manufacturing capacity and the inability to control the amount of time and resources devoted to the manufacture of products. To mitigate this dependency, the Company has relationships with two separate manufacturing service providers and maintain contact with additional alternative suppliers in case the primary manufacturing sources should be disrupted.

Competition

NuRAN must contend with strong international competition. Therefore, there are no guarantees that NuRAN can maintain its competitive position. However, its unique mix of products combined with NaaS service delivery, and skilled human resources give it a competitive edge in several markets.

Availability and Cost of Qualified Professionals

The high-technology industry's strong growth as well as the Company's move into the NaaS model increased the demand for qualified staff. So far, NuRAN has successfully met its needs for personnel. NuRAN benefits from its location in Quebec City, which gives it access to a large pool of engineering resources but has also pursued hiring internationally. Aware that the satisfaction of its customers is directly tied to the quality of its employees, NuRAN continues to take measures to attract and retain well-qualified professionals from a global talent pool.

Ability to Develop and Expand Mix of Products and Services to Keep Pace with Demand and Technological Trends

NuRAN uses several means to remain on the cutting edge and to meet its customers' changing needs—steady investments in product development and improvements, business alliances with major industry suppliers and partners, ongoing training of its personnel and occasional business acquisitions that provide it with specific know-how.

Protection of Intellectual Property

To protect its intellectual property, NuRAN relies on a series of patent and trademark laws, provisions respecting trade secrets, confidentiality protection measures, and various contracts. Regardless of all the efforts made to retain and protect its exclusive rights, third parties could attempt to copy aspects of its products or obtain information regarded as exclusive without authorization. There can be no assurance that the measures taken by NuRAN to protect its exclusive rights will be sufficient.

Dependence on Customers

NuRAN is currently dependent on a limited number of customers for the sale of its products and services. If one or several of these customers should cease doing business with NuRAN for any reason or should reduce or defer their current or planned product purchases, NuRAN's operating results and financial position could be adversely affected.

International Operations Risk

Our international operations are subject to various economic, political and other uncertainties that could adversely affect our business. Since 2014, approximately 40% of our sales were derived from sales outside North America, and economic conditions in the countries and regions in which we operate significantly affect our profitability and growth prospects. The following risks, associated with doing business internationally, could adversely affect our business, financial condition and results of operations:

- regional or country specific economic downturns;
- the capacity of the Company to deliver in a technical capacity and to import inventory at a reasonable cost;
- fluctuations in currency exchange rates;
- complications in complying with a variety of foreign laws and regulations, including with respect to environmental matters, which may adversely affect our operations and ability to compete effectively in certain jurisdictions or regions;
- international political and trade issues and tensions;
- unexpected changes in regulatory requirements, up to and including the risk of nationalization or expropriation by foreign governments;
- higher tax rates and potentially adverse tax consequences including restrictions on repatriating earnings, adverse tax withholding requirements and double taxation;
- greater difficulties protecting our intellectual property;
- increased risk of litigation and other disputes with customers;
- fluctuations in our operating performance based on our geographic mix of sales;
- longer payment cycles and difficulty in collecting accounts receivable;
- costs and difficulties in integrating, staffing and managing international operations, especially in rapidly growing economies;
- transportation delays and interruptions;
- natural disasters and the greater difficulty in recovering from them in some of the foreign countries in which we operate;
- uncertainties arising from local business practices and cultural considerations;
- customs matter and changes in trade policy, tariff regulations or other trade restrictions; and
- national and international conflicts, including terrorist acts.

The percentage of our sales occurring outside of North America will increase over time largely due to increased activity in Africa, Central and South America and other emerging markets. The foregoing risks may be particularly acute in emerging markets, where our operations are subject to greater uncertainty due to increased volatility associated with the developing nature of the economic, legal and governmental systems of these countries. If we are unable to successfully manage the risks associated with expanding our global business or to adequately manage operational fluctuations, it could adversely affect our business, financial condition or results of operations.

Gross Margin May Not Be Sustainable
Our level of product gross margins may be adversely affected by numerous factors, including:

- Changes in customer, geographic, or product mix, including mix of configurations within each product group;
- Introduction of new products, including products with price-performance advantages;
- Our ability to reduce production costs;
- Entry into new markets or growth in lower margin markets, including markets with different pricing and cost structures, through acquisitions or internal development;

- Increases in material, labor or other manufacturing-related costs, which could be significant especially during periods of supply constraints;
- Excess inventory and inventory holding charges;
- Obsolescence charges;
- Changes in shipment volume;

- The timing of revenue recognition and revenue deferrals;
- Increased cost, loss of cost savings or dilution of savings due to changes in component pricing or charges incurred due to inventory holding periods if parts ordering does not correctly anticipate product demand or if the financial health of either contract manufacturers or suppliers deteriorates;
- Lower than expected benefits from value engineering;
- Increased price competition, including competitors from Asia, especially from China;
- Changes in distribution channels;
- Increased warranty costs;
- How well we execute on our strategy and operating plans implementing our new NaaS model.

Changes in service gross margin may result from various factors such as changes in the mix between technical support services and advanced services, as well as the timing of technical support service contract initiations and renewals and the addition of personnel and other resources to support higher levels of service business in future periods.

Competition Risks
The markets in which we compete are characterized by rapid change, converging technologies, and a migration to networking and communications solutions that offer relative advantages. These market factors represent a competitive threat to us. We compete with numerous vendors in each product category. The overall number of our competitors providing niche product solutions may increase. Also, the identity and composition of competitors may change as we increase our activity in newer product categories such as data center and collaboration and in our priorities. As we continue to expand globally, we may see new competition in different geographic regions. In particular, we have experienced price-focused competition from competitors in Africa and the U.S., and we anticipate this will continue.

Some of our competitors compete across many of our product lines, while others are primarily focused in a specific product area. Barriers to entry are relatively low, and new ventures to create products that do or could compete with our products are regularly formed. In addition, some of our competitors may have greater resources, including technical and engineering resources, than we do. As we expand into new markets, we will face competition not only from our existing competitors but also from other competitors, including existing companies with strong technological, marketing, and sales positions in those markets. Companies with whom we have strategic alliances in some areas may be competitors in other areas, and in our view this trend may increase. Companies that are strategic alliance partners in some areas of our business may acquire or form alliances with our competitors, thereby reducing their business with us.

The principal competitive factors in the markets in which we presently compete and may compete in the future include:

- The ability to provide a broad range of networking and communications products and services;
- Product performance;
- The ability to introduce new products, including products with price-performance advantages;
- The ability to reduce production costs;
- The ability to provide value-added features such as security, reliability, and investment protection;
- Conformance to standards;
- Market presence;
- The ability to obtain financing on reasonable terms;
- Disruptive technology shifts and new business models.

We also face competition from customers to which we license or supply technology and suppliers from which we transfer technology. The inherent nature of networking requires interoperability. As such, we must cooperate and at the same time compete with many companies. Any inability to effectively manage these complicated relationships with customers, suppliers, and strategic alliance partners could have a material adverse effect on our business, operating results, and financial condition and accordingly affect our chances of success. the loss of one or more significant suppliers or a reduction in significant volume from such suppliers

Intellectual Property Risks

We generally rely on patents, copyrights, trademarks, and trade secret laws to establish and maintain proprietary rights in our technology and products. Although we have been issued patents, there can be no assurance that any of these patents or other proprietary rights will not be challenged, invalidated, or circumvented or that our rights will, in fact, provide competitive advantages to us. Furthermore, many key aspects of networking technology are governed by industrywide standards, which are usable by all market entrants. In addition, there can be no assurance that patents will be issued from pending applications or that claims allowed on any patents will be sufficiently broad to protect our technology. In addition, the laws of some foreign countries may not protect our proprietary rights to the same extent as do the laws of the United States. The outcome of any actions taken in these foreign countries may be different than if such actions were determined under the laws of the United States. Although we are not dependent on any individual patents or group of patents for particular segments of the business for which we compete, if we are unable to protect our proprietary rights to the totality of the features (including aspects of products protected other than by patent rights) in a market, we may find ourselves at a competitive disadvantage to others who need not incur the substantial expense, time, and effort required to create innovative products that have enabled us to be successful.

Third parties, including customers, have in the past and may in the future assert claims or initiate litigation related to exclusive patent, copyright, trademark, and other intellectual property rights to technologies and related standards that are relevant to us. These assertions have increased over time as a result of our growth and the general increase in the pace of patent claims assertions, particularly in the United States. Because of the existence of a large number of patents in the networking field, the secrecy of some pending patents, and the rapid rate of issuance of new patents, it is not economically practical or even possible to determine in advance whether a product or any of its components infringes or will infringe on the patent rights of others. The asserted claims and/or initiated litigation can include claims against us or our manufacturers, suppliers, or customers, alleging infringement of their proprietary rights with respect to our existing or future products or components of those products. Regardless of the merit of these claims, they can be time-consuming, result in costly litigation and diversion of technical and management personnel, or require us to develop a non-infringing technology or enter into license agreements. Where claims are made by customers, resistance even to unmeritorious claims could damage customer relationships. There can be no assurance that licenses will be available on acceptable terms and conditions, if at all, or that our indemnification by our suppliers will be adequate to cover our costs if a claim were brought directly against us or our customers. Furthermore, because of the potential for high court awards that are not necessarily predictable, it is not unusual to find even arguably unmeritorious claims settled for significant amounts. If any infringement or other intellectual property claim made against us by any third party is successful, if we are required to indemnify a customer with respect to a claim against the customer, or if we fail to develop non-infringing technology or license the proprietary rights on commercially reasonable terms and conditions, our business, operating results, and financial condition could be materially and adversely affected. Our exposure to risks associated with the use of intellectual property may be increased as a result of acquisitions, as we have a lower level of visibility into the development process with respect to such technology or the care taken to safeguard against infringement risks. Further, in the past, third parties have made infringement and similar claims after we have acquired technology that had not been asserted prior to our acquisition.

Many of our products are designed to include software or other intellectual property licensed from third parties. It may be necessary in the future to seek or renew licenses relating to various aspects of these products. There can be no assurance that the necessary licenses would be available on acceptable terms, if at all. The inability to obtain certain licenses or other rights or to obtain such licenses or rights on favorable terms, or the need to engage in litigation regarding these matters, could have a material adverse effect on our business, operating results, and financial condition. Moreover, the inclusion in our products of software or other intellectual property licensed from third parties on a nonexclusive basis could limit our ability to protect our proprietary rights in our products.

Risks arising from the COVID-19 pandemic

The outbreak of COVID-19, which was declared by the World Health Organization to be a pandemic, spread across the globe and impacted worldwide economic activity. A pandemic, including COVID-19, or other public health epidemic poses the risk that we or our employees, vendors, suppliers and other partners may be prevented from conducting normal business activities at full capacity for an indefinite period of time, including due to spread of disease among our employees, vendors, suppliers and other partners, or due to shutdowns that may be or have been requested or mandated by governmental authorities. The COVID-19 pandemic and mitigation measures are currently having and may continue to have an adverse impact on global economic conditions, which has had and may have an adverse effect on our business and financial condition, including on our ability to obtain financing on terms acceptable to us, if at all. The extent to which the COVID-19 pandemic continues to impact our results will depend on future developments that are highly uncertain and cannot be predicted at this time, including new information that may emerge concerning the severity of the virus and the actions to contain its impact.