TITAN MEDICAL INC.

MANAGEMENT'S DISCUSSION AND ANALYSIS

FOR THE THREE AND SIX MONTHS ENDED JUNE 30, 2019

(IN UNITED STATES DOLLARS)

This Management's Discussion and Analysis ("MD&A") is dated July 31, 2019.

This MD&A provides a review of the performance of Titan Medical Inc. ("Titan" or the "Company") and should be read in conjunction with its unaudited condensed interim financial statements for the three and six months ended June 30, 2019 (and the notes thereto) (the "Interim Financial Statements") and the annual audited financial statements for the years ended December 31, 2018 and 2017. The Interim Financial Statements have been prepared in accordance with International Financial Reporting Standards 34, Interim Financial Reporting ("IAS 34"). All financial figures are in United States Dollars except where otherwise noted.

Internal Control over Financial Reporting

During the three and six months ended June 30, 2019, no changes were made to the Company's internal control over financial reporting that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

Forward-Looking Statements

This discussion includes certain statements that may be deemed "forward-looking statements". All statements in this discussion other than statements of historical facts that address future events, developments or transactions that the Company expects, are forward-looking statements. These forward-looking statements are made as of the date of this MD&A. Forward-looking statements are frequently, but not always, identified by words such as "expects", "expected", "expectation", "anticipates", "believes", "intends", "estimates", "predicts", "potential", "targeted", "plans", "possible", "milestones", "objectives" and similar expressions, or statements that events, conditions or results "will", "may", "could", or "should" occur or be achieved. Forward-looking statements that appear in this MD&A include:

- the Company is committed to developing its robotic surgical system with the objective of substantially improving upon minimally invasive surgery;
- the Company's intent to initially pursue gynecologic surgical indications for use of its single-port robotic surgical system;
- the single-port robotic surgical system is being developed with the goal of inserting the multi-articulating instruments and 3D high definition vision system into the patient's body cavity through a single incision;
- the Company's technology and research and development objectives and milestones, including estimated costs, schedules for completion and probability of success;

- the Company's intention with respect to updating any forward-looking statement after the date on which such statement is made or to reflect the occurrence of unanticipated events;
- the Company's expectation with respect to completing and documenting animal and human cadaver studies, and submitting its Investigational Device Exemption ("IDE") application to the U.S. Food and Drug Administration ("FDA") in a timely manner;
- the Company's expectation that it can in a timely manner produce the appropriate preclinical and clinical data required for a 510(k) application to the FDA, and Technical File for the CE mark;
- the Company's expectation with respect to launching a commercial product in certain jurisdictions;
- the Company's intentions to develop a robust training curriculum and post-training assessment tools;
- the Company's plans to develop and commercialize the its single-port robotic surgical system and the estimated incremental costs (including the status, cost and timing of achieving the development and regulatory milestones disclosed herein);
- the Company's plans to design, create and refine software for production system functionality of the single-port surgical system and the estimated incremental costs (including the status, cost and timing of achieving the development milestones disclosed herein);
- the Company's intentions to complete formative and summative human factors studies in a timely manner in support of its regulatory applications;
- the Company's belief that existing and planned prototype and production units will be suitable to support human factors studies and activities related to securing confirmatory human data during 2019;
- the Company's intentions with respect to initiating marketing activities following receipt of the applicable regulatory approvals;
- the Company's intention to continue to assess specialized skill and knowledge requirements and recruitment of qualified personnel and partners;
- the Company's belief that the materials and parts necessary for the manufacture of single-port robotic surgical systems for clinical use will be available in the marketplace;
- the Company's plan to lease a facility in Chapel Hill, North Carolina to house its U.S. operations and the anticipated dry lab to host surgeon training following product launch;
- the Company's expectation that it will be able to finance its continuing operations by accessing public markets for its securities and potentially, debt instruments;
- the Company's intended use of proceeds of any offering of securities;
- the Company's intention with respect to not paying any cash dividends on Common Shares in the foreseeable future;
- the Company's intention to retain future earnings, if any, to finance expansion and growth;
- the Company's projected competitive positioning with respect to its products;

- the Company continues to explore in-licensing opportunities for technologies that may be used in conjunction with its single-port robotic surgical system;
- the Company anticipates that it will continue its pursuit of key strategic relationships;
- the Company's continuing efforts to secure its intellectual property and expand its patent portfolio by filing patent applications as it progresses in the development of its robotic surgical technologies and potentially by licensing suitable technologies;
- the Company's plan to focus on the development and commercialization of its single-port robotic surgical system at estimated incremental costs and according to its projected timeline; and
- the Company intends to utilize a direct sales force and/or distribution partner(s) to initiate marketing its single-port robotic surgical system to hospitals and ambulatory surgery centers.

Although the Company believes the expectations expressed in such forward-looking statements are based on reasonable assumptions, such statements are not guarantees of future performance and actual results or developments may differ materially from those in the forward-looking statements. Forward-looking statements are statements about the future and are inherently uncertain, and actual results of the Company or other future events or conditions may differ materially from those reflected in the forward-looking statements due to a variety of risks, uncertainties and other factors, such as current global financial conditions, dependence on key personnel, conflicts of interest, dependency on additional financing, the Company's history of losses, reliance on strategic alliances, the ability to retain key personnel in a highly-competitive employment environment, the possibility of the Company's inability to augment its management team when required, the possibility that the Company's trade secrets and confidential information may be compromised, reliance on third parties for important aspects of the Company's business, uncertainty as to product development and commercialization milestones, results of operations, competition, technological advancements, rapidly changing markets, uncertain market for the Company's products and technology, uncertainty as to the enforceability of the Company's intellectual property, infringement of intellectual property rights of others, scope and cost of insurance and uninsured risks, risks associated with the Company entering into additional long-term contractual arrangements, ability to license other intellectual property rights, government regulation, changes in market conditions and demands and preferences, changes in government policy, exposure to product liability claims, changes in accounting and tax rules, regulatory inquiries, requirements and approvals, contingent liabilities, manufacturing and product defects, stock price volatility, limited operating history, fluctuating financial results and currency fluctuations, uncertainty as to the Company's ability to meet its development and commercialization milestones, uncertainties as to development and manufacturing of a commercially viable product, reliance on external suppliers and development firms, fluctuations in the market prices of the Company's securities, possible future sales by the Company's shareholders of their securities, limited operating history of the Company, the development stage of the Company and its lack of revenue or earnings, fluctuations of the Company's financial results, the possibility that the Company is not able to maintain its "foreign private issuer" status, and the possibility of delisting from the Nasdaq or TSX exchanges.

Please also refer to the risk factors set forth starting on page 17 of the Company's Annual Information Form for the 2018 fiscal year, available on SEDAR at www.sedar.com, which are expressly incorporated by reference into this MD&A.

There may be other factors that cause actions, events or results not to be as anticipated, estimated or intended. Other than as specifically required by law, the Company undertakes no obligation to update any forward-looking statement to reflect events or circumstances after the date on which such statement is made, or to reflect the occurrence of unanticipated events, whether as a result of new information, future events or results or otherwise. Investors are cautioned that any such statements are not guarantees of future performance and that actual results or developments may differ materially from those projected in the forward-looking statements. Accordingly, investors should not place undue reliance on forward-looking statements.

History and Business

The Company is the successor corporation formed pursuant to two separate amalgamations under the *Business Corporations Act* (Ontario) on July 28, 2008. Titan does not have any subsidiaries.

The address of the Company's corporate office and its principal place of business is 170 University Avenue, Suite 1000, Toronto, Ontario, Canada M5H 3B3.

Overall Performance

During the three and six months ended June 30, 2019 the Company raised gross proceeds, including the 15% over allotment exercised by the Agent, of approximately $28,750,000 ($25,426,744 net of closing costs including cash commission of $2,012,500). The Company generated net and comprehensive losses of $14,472,866 and $42,755,746, which included research and development expenditures of $18,360,674 and $32,769,286, respectively, for the three and six months ended June 30, 2019, and a gain on change in fair value of warrants of $6,609,952 for the three months ended June 30, 2019, and a loss on the change in fair value of warrants of $3,866,673 for the six months ended June 30, 2019.

The Company's business is focused on research and development through the commercialization of computer-assisted robotic surgical technologies for application in minimally invasive surgery ("MIS"). The Company is developing its single-port robotic surgical system, which is comprised of a surgeon-controlled patient cart that includes a 3D high definition vision system and multi-articulating instruments for performing MIS procedures, and a surgeon workstation that provides the surgeon with an advanced ergonomic interface to the patient cart and a 3D endoscopic view inside the patient's body during MIS procedures. The Company intends to initially pursue gynecologic surgical indications for use of its single-port robotic surgical system.

Development of the single-port robotic surgical system has proceeded with input from surgeons and operating room staff experienced in minimally invasive surgery and, consultation with medical technology development firms and input from the Company's Surgeon Advisory Board (the "Surgeon Advisory Board") comprised of surgeons who specialize in minimally invasive surgery. This approach has allowed the Company to design a robotic surgical system that is intended to include the traditional advantages of robotic surgery, including 3D stereoscopic imaging and restoration of instinctive control, as well as new and enhanced features, including an

advanced surgeon workstation incorporating a 3D high definition display providing a more ergonomically friendly user interface and a patient cart with enhanced instrument dexterity. Overall, the surgical system is designed to be adapted to the needs of the surgeon, with the intent that the system will appeal to a broader array of surgeons than systems that do not provide such adjustability.

The single-port robotic surgical system patient cart is being developed to deliver multi-articulating instruments and a 3D high definition vision system into a patient's abdominal body cavity through a single access port. The design of the patient cart includes an insertion tube of approximately 25 millimeter diameter. The insertion tube includes an integrated 2D wide-angle camera module that once inserted, provides visualization for optimal positioning of the camera insertion tube by the bedside assistant under the guidance of the surgeon. Once the camera insertion tube is inserted and positioned in the body, it is docked to the central unit of the patient cart and a separate steerable, 3D high definition endoscopic camera is deployed in a manner that the endoscopic camera and multi-articulating instruments can be controlled by the surgeon via the workstation. The reusable multi-articulating, snake-like instruments are designed to couple with an assortment of permanent and detachable single patient use end effectors that in the case of the latter, provide first use quality in every case and eliminate the reprocessing of the complete instrument. The use of reusable (for a specific number of uses) robotic instruments that can be cleaned and sterilized between surgeries, and single patient use end effectors is intended to minimize the cost per procedure without compromising surgical performance. The patient cart is also designed to include a mast, a boom and wheels for optimal configurability for a variety of surgical indications and the ability to be maneuvered within the operating room, or redeployed within hospitals and ambulatory surgical centers, where applicable.

As part of the development of its single-port robotic surgical system, the Company is developing a robust training curriculum and post-training assessment tools for surgeons and surgical teams. The proposed training curriculum is planned to include cognitive pre-training, psychomotor skills training, surgery simulations, live animal and human cadaver lab training, surgical team training, troubleshooting and an overview of safety. Post-training assessment will include validation of the effectiveness of those assessment tools. On September 18, 2018, the Company announced the successful completion of 14 core surgical skills simulation modules for use with the surgeon workstation. The successful demonstration and delivery of these modules was a significant development in the first phase of the comprehensive surgeon training curriculum that the Company is planning for its single-port robotic surgical system.

The Company continuously evaluates its technologies under development for intellectual property protection through a combination of trade secrets and patent application filings. As of June 30, 2019, the Company had ownership of 39 patents and 83 patent applications. The Company has accelerated the filing and prosecution of patents that management believes will validate the novelty of its unique technology, and in turn, support the value of the entire franchise. Early evidence of success with this initiative has been the rapid growth of its patent portfolio from 12 issued patents at December 31, 2016 to 39 issued patents as of June 30, 2019. The Company anticipates further expanding its patent portfolio by filing additional patent applications as it progresses in the development of robotic surgical technologies and potentially, by licensing suitable technologies.

As part of its development and commercialization efforts, the Company has established certain milestones that it uses to assess its progress toward developing commercially viable robotic

surgical technologies. These milestones relate to technology and design advancements as well as to targeted dates for preclinical and clinical studies and completion of regulatory submissions. To assess progress, the Company regularly tests and evaluates its technology. If such evaluations indicate technical defects or failure to meet cost or performance goals, the Company's commercialization schedule could be delayed, and potential purchasers of its initial commercial systems may decline to purchase them or may choose to purchase alternative technologies.

Among other things, the future success of the Company is substantially dependent on funding its research and development program and design for manufacturing, including the ongoing support of outsourced research and development and manufacturing service providers.

In addition to being capital intensive, research and development activities relating to the sophisticated technologies that the Company is developing are inherently uncertain as to future success and the achievement of desired results. If delays or problems occur during the Company's ongoing research and development activities, important financial and human resources may need to be diverted toward resolving such delays or problems. Further, there is material risk that the Company's research and development activities may not result in a functional, commercially viable, manufacturable product, or one that is approved by regulatory authorities.

During the year ended December 31, 2018, the Company achieved all of its milestones as published in the Company's Annual Information Form for the 2018 fiscal year. The Company generally continued this trend of accomplishment through the six months ended June 30, 2019, having initiated preclinical acute and chronic (survival) live animal and human cadaver procedures according to Good Laboratory Practices ("GLP"). Human factors studies that were previously planned for the second quarter of 2019 were moved to the third quarter in order to accommodate the GLP procedures, which from a timing perspective were a priority.

Discussion of Operations

The Company incurred a net and comprehensive loss of $14,472,866 and $42,755,746 during the three and six months ended June 30, 2019, compared with a net and comprehensive loss of $5,885,415 and $6,694,114 for the three and six months ended June 30, 2018. This increase in net and comprehensive loss for the period is primarily attributed to substantially higher research and development expenditures in 2019 compared to 2018 and to the change in fair value of warrants from a gain in six months ended June 30, 2018 compared to a loss for the six months ended June 30, 2019. The magnitude of the change in the fair value of warrants was impacted substantially by warrants issued in 2019, which did not exist during the same period of 2018.

Total expenses during the first half of 2019 were approximately $37.2 million. The Company had previously forecasted at December 31, 2018 that in the first half of 2019, it expected to incur total expenses of approximately $32.9 million. The difference between the original forecast and actual expenses incurred is primarily related to increased research and development costs. The original estimate was based on the scope of work anticipated as of the fourth quarter of 2018, and related time and materials cost projections received from the Company's product development subcontractors. However, at that time, the engineering confidence build of the Company's single-port robotic surgical system had not yet been completed, nor had subsequent prototype testing and evaluation. Based on system testing and evaluation, and preparation for additional preclinical

studies, the scope of system software integration, instrument improvements and surgical accessory development increased, causing an increase of approximately $4.3 million, or 13% in total expenses during the first six months of 2019, over the prior forecast.

During the three and six months ended June 30, 2019, the Company continued to support strategic product development and manufacturing relationships with qualified subcontractors, carried on efforts to globally secure the Company's intellectual property through the patent and licensing process, and continued the development of the Company's single-port robotic surgical system.

Research and development expenditures (all of which were expensed in the period), for the six months ended June 30, 2019 and June 30, 2018, respectively, were as follows:

Research and Development Expenditures	**Three Months Ended June 30, 2019**	**Six Months Ended June 30, 2019**	**Three Months Ended June 30, 2018**	**Six Months Ended June 30, 2018**
Intellectual property development	$ 2,176	$ 4,636	$ 5,000	$ 9,885
Product development	18,358,498	32,764,650	6,241,275	9,510,464
Total	**$ 18,360,674**	**$ 32,769,286**	**$ 6,246,275**	**$ 9,520,349**

Research and development expenditures increased considerably in the three months ended June 30, 2019 compared to the same period in 2018. This increase was primarily due to an increase in available funding in 2019 that allowed the Company to accelerate product development in 2019, compared to 2018.

Other expenses, excluding the research and development expenses discussed above and excluding finance income (costs) and foreign exchange, the balance of general expenses for the three and six months ended June 30, 2019 were $2,644,642 and $4,345,124, compared to $1,812,801 and $3,533,445 for the comparable periods in 2018. The increase of $811,679 for the six months ended June 30, 2019 is primarily attributable to higher stock-based compensation, consulting fees and an increase in insurance expense.

The impact of the change in fair value of warrants for the three and six months ended June 30, 2019 was a gain of $6,606,952 and a loss of ($3,866,673) compared to gains of $2,210,537 and $5,853,111 for the same periods in 2018. The change of $9,719,784 for the six months ended June 30, 2019 reflects a significant increase in the number and in the fair value of warrants in 2019 compared to 2018.

The Company realized $71,187 and $94,218 of interest income on its cash and cash-equivalent balances during the three and six months ended June 30, 2019, and $54,691 and $82,983 for the same periods in 2018. This increase in interest income is primarily attributed to higher cash balances in its money market account after the equity raise of 2019 compared to prior cash balances through the period ended June 30, 2018.

For a discussion with regard to the status of the development of the Company's single-port robotic surgical system, please see "*Development Objectives*" below.

Summary of Quarterly Results

The following is selected financial data for each of the eight most recently completed quarters, derived from the Company's financial statements and calculated in accordance with IFRS. Basic and diluted loss per share figures are calculated on the basis of the 30:1 consolidation of common shares which was effected in June 2018.

	Three Months Ended June 30, 2019	**Three Months Ended March 31, 2019**	**Three Months Ended December 31, 2018**	**Three Months Ended September 30, 2018**	**Three Months Ended June 30, 2018**	**Three Months Ended March 31, 2018**	**Three Months Ended December 31, 2017**	**Three Months Ended September 30, 2017**
Net sales	-	-	-	-	-	-	-	-
Net and Comprehensive Loss (gain) from operations	$14,472,866	$28,282,880	$8,410,702	$7,534,456	$5,885,415	$808,699	$12,829,980	$13,902,817
Basic and diluted loss per share	$0.46	$1.22	$0.41	$0.41	$0.47	$0.07	$1.20	$1.80

Significant changes in key financial data from the three months ended September 30, 2017 through the three months ended June 30, 2019 reflect the ongoing development of the Company's single-port robotic surgical system. Also included is the requirement to revalue the Company's warrant liability at fair value, with subsequent changes recorded through net and comprehensive loss for the period.

During the second quarter of 2019, the Company had a net and comprehensive loss of $14,472,866 compared to a net and comprehensive loss of $5,885,415 for the same period in 2018. This increase in loss of $8,587,451 is primarily attributed to substantially higher research and development expenditures in 2019 of $18,360,674 compared to $6,246,275 in 2018 offset by the gain in the fair value of warrants in 2019 of $6,609,952 compared to $2,210,537 in 2018.

Liquidity and Capital Resources

The Company currently does not generate any revenue (other than interest income on its cash balances) and accordingly it is primarily dependent upon equity financing for any additional funding required for development and operating expenses.

The ability of the Company to arrange financing in the future will depend in part upon prevailing capital market conditions and the business success of the Company. There can be no assurance that the Company will be successful in its efforts to arrange additional financing on terms satisfactory to the Company. If adequate funds are not available, or are not available on acceptable terms, the Company may not be able to take advantage of opportunities, or otherwise to continue its technology development program at its current pace. If additional financing is raised by the issuance of shares or convertible securities from treasury, control of the Company may change and shareholders may suffer additional dilution, or loss of their investment.

The Company had $10,320,183 of cash and cash equivalents on hand and accounts payable and accrued liabilities of $12,231,777 excluding warrant liability at June 30, 2019, compared to $22,367,119 and $4,188,835 respectively, at June 30, 2018. The Company's working capital at

June 30, 2019 was $7,643,172 excluding warrant liability, compared to $22,759,891 at June 30, 2018.

Below is a table that sets out the various series of the Company's warrants that were previously issued, using historic rates.

	Issue Date	Expiry Date	Number Issued	Number Outstanding	Exercise Price (CDN $)
TMD.WT.F	November 16, 2015	November 16, 2020	233,740	233,740	$48.00
TMD.WT.G	February 12, 2016	February 12, 2021	389,027	386,694	$30.00
TMD.WT.G	February 23, 2016	February 12, 2021	58,226	58,226	$30.00
TMD.WT.H	March 31, 2016	March 31, 2021	501,831	501,831	$36.00
TMD.WT.H	April 14, 2016	March 31, 2021	75,275	75,275	$36.00
TMD.WT.I	September 20, 2016	September 20, 2021	569,444	569,444	$22.50
TMD.WT.I	October 27, 2016	September 20, 2021	67,667	67,667	$22.50
NOT LISTED	March 16, 2017	March 16, 2021	357,787	355,253	$15.00
NOT LISTED	June 29, 2017	June 29, 2022	1,612,955	75,810	$6.00
NOT LISTED	July 21, 2017	June 29, 2022	370,567	370,567	$6.00
NOT LISTED	August 24, 2017	August 24, 2022	563,067	563,067	$6.00
NOT LISTED	December 5, 2017	December 5, 2022	1,533,333	1,533,333	$18.00
NOT LISTED	April 10, 2018	April 10, 2023	1,126,665	1,126,665	$10.50
NOT LISTED	May 10, 2018	April 10, 2023	168,889	168,889	$10.50
NOT LISTED	August 10, 2018	August 10, 2023	7,679,574	6,661,068	US $3.20
NOT LISTED	March 21, 2019	March 21, 2024	8,455,882	8,455,882	US $4.00
TOTAL			**23,763,929**	**21,203,411**	

Development Objectives and Regulatory Plans

The Company uses a combination of internal resources and external development firms to execute the research, development, regulatory and commercialization plans for the Company's single-port robotic surgical system. Development objectives have been established to support the Company's planned FDA 510(k) filing for marketing clearance in the U.S., and submittal of a Technical File to a European Notified Body for achievement of the CE mark, which indicates that a product for sale within the European Economic Area has been assessed to conform with health safety and environmental protection requirements.

The Company has previously confirmed with the FDA that confirmatory human data will be required for its planned 510(k) regulatory submission. The performance of human surgeries with the single-port robotic surgical system will require an IDE from the FDA, which must be submitted and approved in advance. Further, the recruitment of surgeons from multiple hospital sites or ambulatory centers will be necessary to perform the surgeries. Each of these sites will require approval of their independent Institutional Review Board ("IRB") to approve the studies.

Previous results achieved by surgeons in operating prototypes in animal and cadaver studies have validated the potential for single incision surgeries to be performed with the Company's single-port surgical system. Insights gained from these preclinical studies have directed the Company to

make further product improvements. Such improvements were implemented in a capital equipment engineering confidence build of an improved prototype, which was announced in January of 2019. On April 30, 2019 the Company announced that it had achieved hardware design freeze for its single-port robotic surgery system. In June of 2019, the Company commenced preclinical live animal and cadaver studies according to GLP for FDA submittal. On July 18, 2019 the Company announced that it had completed all planned GLP surgical procedures necessary for its IDE application to the FDA. Anticipating positive results from these studies, the Company plans to submit its IDE application to the FDA during the third quarter of 2019.

During the second half of 2019, Company intends to continue software development and proceed with summative usability evaluation tests and validation studies required for supporting regulatory filings by year-end. During the third quarter, the Company plans to pursue IDE approval by the FDA, and approvals by the IRB committee of each hospital in preparation for the confirmatory human studies planned for completion during the fourth quarter of 2019.

Estimates of the timing and costs for development milestones beyond 2019 are speculative. The Company estimates that a minimum of U.S. $53.8 million will be required to fund its operations through the 12-month period ending June 30, 2020. Based on cash and cash equivalents on hand including deposits with suppliers as of June 30, 2019, management believes that it will need to secure approximately $46.2 million in additional capital to fund its operations through the end of the second quarter of 2020. This includes the projected capital resources necessary for the Company to submit its 510(k) application to the FDA and apply for the CE mark. If successful with those efforts, the Company then expects to proceed with early commercialization activities in the U.S. in 2020. Given the uncertainty of, among other things, product development timelines, regulatory processes and requirements (such as confirmatory human studies), as well as the availability of required capital to fund development, operating and commercialization costs, actual costs and development times may exceed management's current expectations and an accurate estimate of the future costs of the regulatory phases and development milestones beyond the second quarter of 2020 is not possible at this time.

The Company's current plan is to raise sufficient financing and continue development and commence commercialization of its single-port robotic surgical system at estimated incremental costs, and according to the updated timeline, as set forth in the table below.

Current Development Plan

The Company anticipates development costs through to the end of the second quarter of 2020 to be as set out in the table below (the "Current Development Plan").

Milestone Number	*Development Milestones*	*Estimated Cost (in U.S. millions $)*	*Schedule for Milestone Completion*	*Comments*
Milestone 1	Prototype, test and procure surgeon feedback on revised workstation controls Complete software and hardware change requirements and finalize computer and software architecture for production systems Complete revisions to instrument and lens wash system and demonstrate performance		Q2 2018	*Completed*
Milestone 2	Complete Camera Insertion Tube (CIT) engineering confidence build based on improved design Complete design of surgeon workstation and patient cart for engineering confidence build Complete and demonstrate full suite of simulation software for beta test		Q3 2018	*Completed*
Milestone 3	Complete capital equipment engineering confidence build based on improved design		Q4 2018	Completed
Milestone 4	Document results of confidence build unit testing, implement subsystem design improvements and schedule preliminary audit of quality system by European Notified Body		Q1 2019	*Completed*
Milestone 5	Update system design and related hardware and software documentation Initiate Design Freeze Initiate preclinical live animal (swine) and cadaver studies according to final protocols for FDA submittal Submit draft protocols to FDA in Q-submission(s) for comment		Q2 2019	*Completed* *Completed* *Completed* *Completed*

Milestone Number	*Development Milestones*	*Estimated Cost (in U.S. millions $)*	*Schedule for Milestone Completion*	*Comments*
Milestone 6	Complete and document preclinical live animal (swine) and cadaver studies according to final protocols for FDA submittal Verify production system operation with clinical experts under rigorous formal (summative) human factors evaluation under simulated robotic manipulation exercises Submit Investigational Device Exemption (IDE) application to FDA Obtain ISO 13485 Certification Receive IDE approval from FDA	25.7(1)	Q3 2019	
Milestone 7	Complete and document human confirmatory studies under IDE protocols for FDA submittal Submit Technical File to European Notified Body for review for CE Mark Submit 510(k) application to FDA	16.6(2)	Q4 2019	
Milestone 8	Ongoing software development and implementation Planning and preparation for manufacturing and commercialization	6.1(3)	Q1 2020	
Milestone 9	Planning and preparation for manufacturing and commercialization	5.4(4)	Q2 2020	
	TOTAL	53.8		

(1) Includes research and development costs estimated at approximately US $23.8 million, and general and administrative costs estimated at approximately US $1.9 million.
(2) Includes research and development costs estimated at approximately US $14.6 million, and general and administrative costs estimated at approximately US $2.0 million.
(3) Includes research and development costs estimated at approximately US $3.8 million, and general and administrative costs estimated at approximately US $2.3 million.
(4) Includes research and development costs estimated at approximately US $3.0 million, and general and administrative costs estimated at approximately US $2.4 million.

Management believes that the Company's accomplishments during the first half of 2019 have positioned it to execute the regulatory milestones ahead. During the second quarter of 2019, surgeries associated with its GLP studies were completed, and management will now focus on compiling the follow-up documentation required for the IDE submission. Once IDE approval is received, the Company can then submit applications to the IRB committees of the hospitals where the first human surgeries will be performed under the IDE prior to FDA marketing clearance. The

hand-picked surgeons in the IDE studies are highly skilled, world-renowned thought leaders in gynecologic surgery.

The Company had previously forecasted at December 31, 2018 that in the second half of 2019, it expected to incur total milestone-related expenses of approximately $31.2 million. The Company now anticipates that those expenses will total approximately $42.3 million. The difference between the original and updated milestone-related costs is primarily related to increased research and development costs. The original estimate was based on the scope of work anticipated as of the fourth quarter of 2018, and related time and materials cost projections received from the Company's product development subcontractors. Having now successfully completed the GLP procedures, the scope and costs associated with system software integration, instrument improvements and surgical accessory development can be better estimated.

The timing of IDE approval by the FDA and subsequent IRB committee approvals cannot be precisely predicted. Currently, management believes it is possible that human surgeries aimed at collecting confirmatory data required for the 510(k) submission can commence and be completed during the fourth quarter of 2019. The schedule for completing patient follow-up and compiling data for the 510(k) submission in December is very tight and not completely within the Company's control; however, management remains committed to the goal of filing this submission and filing for CE mark in Europe by year-end.

Upon completion of the development of the single-port robotic surgical system and following receipt of applicable regulatory clearance in the United States, the Company intends to utilize a direct sales force and to initiate marketing of its single-port robotic surgical system to hospitals and ambulatory surgery centers in the U.S.

Due to the nature of technology research and development, there is no assurance that these objectives will be achieved, and there can be no assurance with respect to the time or resources that may be required. The Company expects that additional milestones could be identified as the development of its single-port robotic surgical system progresses, or existing milestones, budgets and the schedule for completion of each milestone may change depending on a number of factors including the results of the Company's development program, clarification of or changes to regulatory requirements, the availability of financing and the ability of development firms engaged by the Company to complete work assigned to them. The total costs to complete the development of the Company's single-port robotic surgical system as referenced above are only an estimate based on current information available to the Company and cannot yet be determined with a high degree of certainty, and the costs may be substantially higher than estimated. Please see "*Forward-Looking Statements*".

Please also refer to the risk factors set forth starting on page 16 of the Company's Annual Information Form for the 2018 fiscal year, available on SEDAR at www.sedar.com.

Financings

Offerings During the first half of 2019

On March 21, 2019, Titan completed an offering of securities made pursuant to an agency agreement dated March 18, 2019 between the Company and Bloom Burton Securities Inc. as agent

("Bloom Burton"). The Company sold 8,455,882 Units under the Offering at a price of $3.40 per Unit for gross proceeds of approximately $28,750,000 ($25,426, 744 net of closing cost including cash commission of $2,012,500). Each Unit consisted of one common share of the Company ("Common share") and one warrant, each warrant entitling the holder thereof to acquire one Common Share at an exercise price of $4.00 and expiring March 21, 2024. The warrants were valued at $15,897,059 based on the value determined by the Black-Scholes model and the balance of $12,852,941 was allocated to Common Shares.

Pursuant to the agency agreement, in addition to the cash commission paid to Bloom Burton, broker warrants were issued to Bloom Burton which entitle the holder to purchase 591,911 Common Shares at a price of $3.40 per share prior to expiry on March 21, 2021. The broker warrants were valued using the Black-Sholes model and the value of $864,190 was accounted for as an increase in the closing costs and allocated between the shares and the warrants.

During the quarter ended June 30, 2019, there were no warrants exercised in the period. During the three months ended March 31, 2019, 1,018,506 warrants were exercised for total proceeds of $3,259,219. The fair value of the exercised warrants was $3,742,824 which was reclassed from warrant liability to Common Shares.

Offerings During the Third Quarter of 2018

On August 10, 2018, the Company completed an offering of securities made pursuant to an agency agreement dated August 7, 2018 between the Company and Bloom Burton as agent in respect of the offering. The Company sold 7,679,574 units under the offering price of $2.50 per unit for gross proceeds of approximately $19,198,935 ($17,464,711 net of closing cost including cash commission of $1,343,925). Each unit consisted of one Common Share and one warrant, each warrant entitling the holder to acquire one Common Share at an exercise price of $3.20 and expiring August 10, 2023.

Offerings During Second Quarter of 2018

On April 10, 2018, the Company completed an offering of securities pursuant to an agency agreement dated April 3, 2018 between the Company and Bloom Burton as agent in respect of the offering. The Company sold 1,126,665 units under the offering at a price of CDN $9.00 per unit for gross proceeds of approximately $8,035,941 ($7,211,320 net of closing costs including cash commission of $562,516). Each unit consisted of one Common Share and one warrant, each warrant entitling the holder thereof to acquire one Common Share at an exercise price of CDN $10.50 and expiring April 10, 2023.

On May 10, 2018, the Company announced the exercise of the over-allotment option granted to Bloom Burton as agent in respect of the offering, at a price of CDN $9.00 per unit, completed on April 10, 2018 and the Company sold an additional 168,889 units at the offering price for additional gross proceeds of $1,189,856 ($1,100,238 net of closing costs including cash commission of $76,988). Each unit consisted of one Common Share and one warrant, each warrant entitling the holder thereof to acquire one Common Share at an exercise price of CDN $10.50 and expiring April 10, 2023.

Off-Balance Sheet Arrangements

As of the date of this report, the Company had no off-balance sheet arrangements.

Outstanding Share Data

The following table summarizes the outstanding share capital as of the date of this MD&A:

Type of Securities	**Number of Common Shares issued or issuable upon conversion**
Common Shares	31,150,237
Stock options[(1)(2)]	1,723,449
Warrants	21,203,411
Broker warrants[(2)]	1,324,626

Notes:

(1) The Company has outstanding options enabling certain employees, directors, officers and consultants to purchase Common Shares. Please refer to note 6(b) of the Unaudited Condensed Interim Financial Statements for terms of such options.

(2) A total of 536,412 stock options were issued in the month of July 2019 to two directors, an employee and a consultant.

(3) A total of 1,510,104 broker warrants were issued in connection with the March 2017, June 2017, December 2017, April 2018, August 2018 and March 2019 offerings. As of the date hereof, 1,324,626 broker warrants remain outstanding. Details include the following:

- Pursuant to the agency agreement in respect of the March 2017 offering, in addition to the cash commission paid to the agents, 50,005 broker warrants were issued to the agents. Each broker warrant entitles the holder thereof to acquire one Common Share at the price of CDN $10.50 for a period of 24 months following the closing date. These warrants expired in March 2019.
- Pursuant to the agency agreement in respect of the June 2017 offering, in addition to the cash commission paid to the agents, 135,473 broker warrants were issued to the agents. Of these broker warrants, 106,070 were exercised and the balance of 3,463 expired in the three months ended June 30, 2019.
- Pursuant to the agency agreement in respect of the December 2017 offering, in addition to the cash commission paid to the agents, 105,350 broker warrants were issued to the agents. Each broker warrant entitles the holder thereof to acquire one Common Share at the price of CDN $15.00 for a period of 24 months following the closing date.
- Pursuant to the agency agreement in respect of the April 2018 offering, in addition to the cash commission paid to the agents, 89,795 broker warrants were issued to the agents. Each broker warrant entitles the holder thereof to acquire one Common Share at the price of CDN $9.00 for a period of 24 months following the closing date.
- Pursuant to the agency agreement in respect of the August 2018 offering, in addition to the cash commission paid to the agents, 537,570 broker warrants were issued to the agents. Each broker warrant entitles the holder thereof to acquire one Common Share at the price of US $2.50 for a period of 24 months following the closing date.
- Pursuant to the agency agreement in respect of the March 2019 offering, in addition to the cash commission paid to the agents, 591,911 broker warrants were issued to the agents. Each broker warrant entitles the holder thereof to acquire one Common Share at the price of US $3.40 for a period of 24 months following the closing date.

Accounting Policies

The accounting policies set out in the notes to the unaudited condensed interim financial statements for the three and six months ended June 30, 2019 and the audited financial statements for the years ended December 31, 2018 have been applied in preparing the unaudited condensed interim financial statements for the three and six months ended June 30, 2019, and the comparative information presented in the unaudited condensed interim financial statements for the three and six months ended June 30, 2018.

These unaudited condensed interim financial statements have been prepared in accordance with accounting principles applicable to going concern, which contemplates that the Company will be able to realize its assets and settle its liabilities in the normal course as they come due during the normal course of operations for the foreseeable future. The Company has shareholders' deficiency of $215,693,440 and current losses of $42,755,746. The Company currently does not generate any revenue (other than interest income on its cash balances) and accordingly it is primarily dependent upon equity financing for any additional funding required for development and operating expenses. The Company expects that approximately US $46.2 million in incremental funding is needed, for the next 12 months to maintain its currently anticipated pace of development. If additional funding is not available, the pace of the Company's product development plan may be reduced. These conditions indicate the existence of a material uncertainty that may cast significant doubt on the ability of the Company to continue as a going concern if additional funding is not secured. However, based on internal forecasts, Management believes that the Company has sufficient funds to meet its obligations under a reduced development plan, if necessary, for the ensuing twelve months.

The preparation of financial statements in conformity with IAS 34 requires management to make estimates and assumptions that affect the reported amount of assets and liabilities and disclosure of provisions at the date of the financial statements and the reported amount of expenses during the period. Financial statement items subject to significant judgement include, (a) the measurement of stock-based compensation and (b) the fair value estimate of the initial and subsequent measurement of new warrant liabilities. While management believes that the estimates and assumptions are reasonable, actual results may differ.

(a) Stock Options

The Black-Scholes model used by the Company to determine fair values of stock options and warrants was developed for use in estimating the fair value of the stock options and warrants. This model requires the input of highly subjective assumptions including future stock price volatility and expected time until exercise. Changes in the subjective input assumptions can materially affect the fair value estimate.

(b) Warrant Liability

In accordance with IAS 32, since the exercise price of new warrants are not a fixed amount, they are denominated in a currency (Canadian dollar) other than the Company's functional currency (U.S. dollar), as well as the warrants issued August 10, 2018 and March 21, 2019 with the cashless exercise option. The warrants are accounted for as a derivative financial liability. The warrant liability is initially measured at fair value and subsequent changes in fair value are recorded through net and comprehensive loss for the period. The accounting guidance for fair value measurements prioritizes the inputs used in measuring fair value into the following hierarchy:

Level 1 – Quoted prices (unadjusted) in active markets for identical assets or liabilities;

Level 2 – Inputs other than quoted prices included within Level 1 that are directly or indirectly observable;

Level 3 – Unobservable inputs in which little or no market activity exists, therefore requiring an entity to develop its own assumptions about the assumptions that market participants would use in pricing.

The fair value of the Company's warrant liability is initially based on level 2 (significant observable inputs) and at June 30, 2019 is based on level 1, quoted prices (unadjusted) in an active market, for the Company's listed warrants and level 2 for the Company's unlisted warrants.

Related Party Transactions

During the quarter ended June 30, 2019, transactions between the Company and directors, officers and other related parties were related to compensation matters in the normal course of operations and are measured at the exchange amount, which is the amount of consideration established and agreed to by the related parties.

Financial Instruments

The Company's financial instruments consist of cash and cash equivalents, amounts receivable, accounts payable and accrued liabilities and warrant liability. The fair value of these financial instruments approximates their carrying values, unless otherwise noted, due to the short-term maturities of these instruments or the discount rate applied.

Events Subsequent to the Quarter Ended June 30, 2019

In July 2019, the Company issued an aggregate 536,412 stock based options to certain directors, an employee and a consultant.

The Company recently became eligible to file a shelf registration statement and soon thereafter filed its shelf registration statement on Form F-3 with the U.S. Securities and Exchange Commission ("SEC"). The Company considers it good corporate practice to maintain a shelf registration. If the registration statement is declared effective by the SEC, up to $125 million of securities may be offered, separately or together, at a future time. The terms of any such offering, including the specific terms and prices of the securities, will be determined at the time of such offering and be made solely by means of the prospectus included in the registration statement and any prospectus supplement that may be filed with the SEC relating to such offering.

Outlook

By internal estimates, management believes there is an opportunity for the Company to access an unaddressed U.S. market that potentially may include more than $12 billion in capital equipment revenue and more than $3 billion in associated annual recurring revenue, including smaller hospitals and the underserved ambulatory surgery center market segment. While the magnitude of this opportunity is considerable, so is the amount of capital required to potentially compete for market share in a highly competitive market, against others with much greater financial resources. At present, management estimates that cash needs to finance operations through the second quarter of 2020 will be approximately $53.8 million.

Based on this, the Company plans to raise significant additional capital to continue to finance the development and commercialization of its single-port robotic surgical system. The Company will continue to explore alternative sources in order to minimize dilutive effects, including, where appropriate, strategic partnerships, private placements and debt. Management will continue to assess the reasonableness of development milestones, as well as timelines and related cost estimates, as financing is secured and development continues.

On July 18, 2019, the Company announced that it had completed the surgeries associated with its GLP studies and would then focus on compiling follow-up documentation required for its IDE submission to the FDA. Assuming IDE approval is received, the Company can then submit applications to the IRB committees of the hospitals where the first human surgeries will be performed under the IDE prior to regulatory marketing clearance. The hand-picked surgeons in the IDE studies are highly-skilled, world-renowned thought leaders in gynecologic surgery.

The timing of IDE approval by the FDA and subsequent IRB committee approvals cannot be precisely predicted. Currently, management believes that it is possible that human surgeries aimed at collecting confirmatory human data can commence and be completed during the fourth quarter of 2019. The schedule for completing patient follow-up and compiling data for the 510(k) submission in December 2019, is very tight and not completely within the Company's control; however, management remains committed to the goal of filing this submission and filing for CE mark in Europe by year-end. In parallel, the Company is developing and exercising its quality system toward ISO13485 compliance.

In anticipation of manufacturing and commercialization, the Company has continued to build its leadership team at the Board of Directors and executive levels. On May 1, 2019, the Company announced the appointment of Charles W. Federico as Chairman of the Board of Directors. Mr. Federico as a past Director of MAKO Surgical Corp., served as Chairman, Lead Director, Compensation Committee Chairman, Governance Committee Chairman and an Audit Committee Member from 2007 to 2013. The previous Chairman, John Barker continues to serve as a Director an as Audit Committee Chair.

On July 8, 2019, the Company named Mr. Chad Zaring as its Chief Commercial Officer, a new position. Chad led strategy and market adoption of Mazor Robotics' MazorX^{TM} robotic system under a strategic marketing agreement that led to that company's acquisition by Medtronic.

On the engineering and operational fronts, the Company continues to recruit experienced individuals to support its Senior Vice President of Research and Development, Perry Genova,, in managing the transition from product development to manufacturing during the months ahead.

Looking forward, the Company plans to lease a facility in Chapel Hill, North Carolina during the third quarter of 2019 to house its U.S. operations, including the team that will manage engineering and manufacturing, technical support, quality, customer service, training, clinical support and, ultimately, commercialization. The prospective location is in close proximity to product development partners and has access to the significant talent that resides in this medical technology hub. Importantly, it is anticipated that the facility will include a dry lab to host surgeon training following product launch.

During the second half of 2019, and in addition to preparation for regulatory submittals, the Company will continue to focus on product development and preparation for manufacturing, including software involving the workstation, patient cart, instruments, cameras and light sources, and disposable components that facilitate successful surgery.

The Company continues to engage external technical experts and subcontractors with experience in key technical areas to provide an accelerated pathway to subsystems development with current technology. Further, the Company plans to continue to protect its intellectual property by securing additional patents. The pace at which the Company can carry out these activities will be substantially dependent on its ability to raise the necessary capital on a timely basis.

Additional information relating to the Company, including Titan's Annual Information Form for the 2018 fiscal year, is available on SEDAR at www.sedar.com.