

**IDENTIFYING BUSINESS WAR-GAMING
APPLICATIONS AND UTILITY IN PRODUCT
LAUNCH STRATEGY**

Dissertation Submitted to



The IIHMR University, Jaipur

for the partial fulfilment for the award of the

degree of Business Administration (MBA)

in

Hospital and Health Management

by

Akansha Singh

Under the Supervision and Guidance of

Dr. Daya Krishan Mangal

Professor, IIHMR University, Jaipur

2021

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DECLARATION BY STUDENT

I hereby declare that this dissertation titled '**Identifying Business War-Gaming Applications and Utility in Product Launch Strategy**' is the bonafide record of my original researchwork. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

Akansha Singh

02/07/2021

CERTIFICATE

This is to certify that Akansha Singh in partial fulfillment of the requirements for the award of the degree of MBA (Hospital and Health Management) from the IIHMR University, Jaipur has successfully completed her dissertation project at EMeRG during March 22, 2021, to June 19, 2021.

Bangalore:
30th June 2021

Krishanu Bhattacharjee
CEO, Founder EMeRG

CERTIFICATE

This is to certify that dissertation titled “Identifying Business War-Gaming Applications and Utility in Product Launch Strategy” is a record of the research work undertaken by **Akansha Singh** in partial fulfillment of the requirements for the award of the degree of MBA (Hospital and Health Management) from the IIHMR University, Jaipur under my guidance and supervision and her approach to the research study has been sincere, scientific, and analytical.

Dr. Daya Krishan Mangal
Professor, IIHMR University, Jaipur

Dr. Dharendra Kumar
Dean, IIHMR University,
Jaipur

Date: 02/07/2021

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ABSTRACT

The study is based on a life project conducted by team EMeRG for a client.

The study aims at devising possible go-to-market strategies with the help of simulation exercises such as business world gaming for the entry of new product into the market. Historically wargaming was used as a part of military training to estimate the strategies and tactics of the opponent. the foresightedness helped in reducing casualties and economic losses. A similar approach was followed in business wargaming, where the company steps into the shoes of its competitors. Intel is gathered on the strengths, weaknesses, trends, etc., followed by the competitors. The gathered data is used by the participants in the simulation exercise. Due to the involvement of top management levels with diverse profiles such as sales, marketing, etc., Realistic predictions made on the strategies that could be implemented by the competitor as a counter reaction to the product launched.

At the end of this exercise the data was assimilated which showed the brand presence of competitors in some geographical areas more than the other, customer testimonials helped in finding the key asks with the end-users, difference in technology and digital specifications.

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Sincerely,

Akansha Singh

Chapter 1

INTRODUCTION

1. Introduction

The introduction's purpose is to present the thesis's background, followed by motivation and the study's goal. This chapter will conclude with an explanation of the key research issue and a discussion of the study's limitations.

1.1 Background

1.1.1 Thesis background

Medical technology comprises a wide range of health care devices intended to diagnose, monitor, or cure diseases and other problems known to affect people, with over 500,000 distinct forms.

Formulating the correct go-to-market strategy in various growing markets, where medical device sales are mostly based on channel partners demands a thorough understanding of the market and competitive dynamics.

To avoid situations where competitors simply create around or outsmart the scope of a specific product launch in any region, a new method of improving present processes must be introduced. Business war-gaming has been suggested as a viable way to analyze the major risks and problems which could affect a company's strategy.

Furthermore, business wargames can assist in evaluating a new product's underlying values and primary consumer benefits in a way that traditional market or competitive study cannot. The following definition captures the essence of business war-gaming:

“Business war-gaming is a roleplaying simulation tool, which allows testing a strategic plan against the possible reaction of competitors”

1.1.2 Organisation background

With a field presence in over 48 emerging nations, EMeRG addresses the conundrum of "innovation in isolation" within the medical technology business.

EMeRG, an international medical technology research and consultancy organisation, uses ethnographic observations to deliver customer insights to its clients. Through a customer-centric approach, voice of customer reports, and white papers encompassing

15 major categories of medical devices, the organisation has supplied business solutions to its clients.

The organisation aided medical technology enterprises in overcoming difficult business challenges through NPI research, value proposition evaluation, outcomes research, pricing research, Go-To-Market strategy, competitive intelligence, ethnographic and conference research, and market entrance assessment.

1.2 Motives of the study

Because few research and limited case based studies on the practical use of real-time business war-gaming in various industries have been written, the author believes that this study will be of wide interest. Furthermore, no research has been conducted to examine the applicability of corporate war-gaming and its use in the med-tech industry.

The roots of business war-gaming is in military war-games, which have generated a plethora of scholarly journals and literature. This research attempts to add to the current body of knowledge in the subject by focusing on the go-to-market aspect of war-gaming (business).

The author has a belief that this research will provide significant and practical insights to industry people, as well as stimulate them to apply business war-gaming in practise to test their ideas.

1.3 Aim of the study

To better understand the study's purpose/aim, the author has attempted to provide it in the form of a case study:

Our client: A global medical technologies firm with specialization in medical imaging devices.

Challenge statement: Our client was looking to introduce their new performance PET/CT scanner. The client wanted to have business war-gaming as simulation exercise to understand the competitor scenario/reaction on their new product launch.

Approach: EMeRG conducted business wargaming sessions using their proprietary framework to develop a GTM strategy.

1.4 Delimitations

Because business war-gaming is a relatively new profession in academia and industry, there is little research, studies, or theoretical frameworks on the subject. However, a preliminary search brought up a number of materials that will aid in the development of the theoretical underpinning for this study and the production of reliable outcomes.

Time frame for this study was one month, where considering company confidentiality requirements it does not allow author to provide significant insights and hence somehow limits the few outcomes of this thesis.

1.5 Disposition of the thesis

This thesis is organised in five sections. A brief synopsis of each chapter will be provided to help the reader navigate the study.

The thesis background, as well as the thesis' rationale, key research areas, and limitations, are described in the first chapter.

The methodology that was employed to carry out the master thesis procedure is discussed in Chapter 2. The study's approach and strategy, as well as the data gathering and analysis process, are all discussed in detail.

The theory of business war-gaming, which assesses the literature underpinning of this study, frameworks of business war-gaming, is covered in Chapter three, which summarizes the evaluated literature and covers the theory of business war-gaming.

Chapter four focuses and analyses the main findings from the study. The data was collected for the client's top four competitor and only one of them is revealed due to confidentiality issues.

Chapter five consist of the conclusion of thesis.

Chapter 2

REVIEW OF LITERATURE

2. Review of Literature

This section is broken down into three sections. The first half of the study covers the history, applications, benefits, and downsides of business war-gaming, as well as a theoretical overview to help the reader understand the second part. Two distinct business war-gaming frameworks will be compared in the second segment. The third part summarizes the articles and research paper published on business war-gaming which were collected from the secondary data sources such as Google Scholar, PubMed, and Journal of Business.

2.1 Theory of Business War-Gaming

2.1.1 Defining the term: Business War-Gaming

As of now business war-gaming is still a new concept, there is no universally accepted definition. Some authors define war-gaming as a simulation of a competitive sales and marketing situation, with the goal of identifying competitive messages that can jeopardize a product's strategic position and tactical execution effectiveness. The definition of business war-gaming says that it is: “a role-playing simulation of dynamic business situation. It involves a series of teams, each assigned to assume the identity of and entity with a stake in the situation.

2.1.2 Types of Business War-Gaming

It was difficult to identify certain types of business wargames because few literatures outline specific categories and no consistent approach to categorize them has been discovered.

The three main kinds are computer-based war games, game-theory-based war games, and competitive-intelligence role-playing-type war games. Furthermore, the importance of business war-gaming for training and education has been underlined, followed by the introduction of their own categories.

The examples above show the breadth of options available in this field, demonstrating that business war-gaming is still in its early stages of development and deployment. Academics and industry experts have yet to agree on how to categorise business wargames.

2.1.3 Application of Business War-Gaming

Business wargaming can be used for testing the strategy, planning for crisis, establishing foresights, change in the management, training, and recruitment activities. The most well-known application of business war-gaming is strategic testing. The primary agenda is to put an already existing strategy plan to the test in a competitive context, to question key assumptions, and to discover new business prospects.

Business wargames provide a situation in which the imagination is stretched to its limits in order to attain certain goals and test a specific strategy in a near-real-life setting.

2.1.4 The Advantages and Disadvantages of Business War-Gaming

One of the most compelling benefits of business war-gaming is the opportunity to test strategic plans in a dynamic, close-to-real-life setting and find intelligence gaps, blind-spots, weaknesses, strengths, and other concerns. Role-playing and active participation of participants promote innovative problem solving, team building, and effective learning. Furthermore, it emphasizes that business war-gaming allows for a better understanding of competitors and their potential moves that can be influenced by a determined strategy, as well as the development of foresights for a company. Gilad emphasizes that war-gaming encourages participants to believe in their approach because they have seen numerous potential setbacks as well as chances.

One of the major drawbacks of wargames is that they allow users to concentrate solely on one person or industry at a time. Another flaw in business wargaming is that it identifies various critique areas, including cultural misalignment, management challenges, follow-up commitment, and the reality that not all leaders are willing to test their established strategies. It has also been emphasized that business war-gaming may be quite resource intensive, in terms of the costs of developing a business war-game, key management involvement, and participation in at least one day activity. Another downside of business war-gaming is that it cannot decide which plan is the most feasible to adopt; instead, it can only help you make better, more realistic decisions. It also acknowledges that business war-gaming is a time-consuming process, with sessions taking weeks or months to arrange, depending on the difficulty, depth, and learning outcomes.

2.2 Business War-Gaming Frameworks

2.2.1 Framework 1

Although most business wargames follow a similar design, however the execution and tools that can be used differ significantly, as literature indicates that the essentials of a game are highly reliant on each individual instance. The graphic below depicts a business war-gaming model:

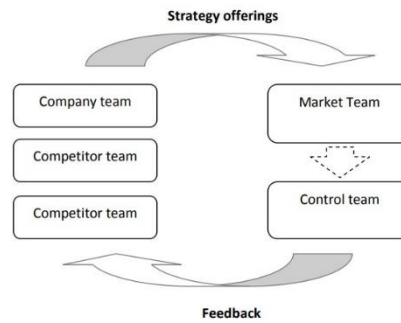


Figure 2.1: Business wargaming Framework 1

Such business war-games necessitate a large amount of effort spent planning the session, as well as sophisticated technological systems to compute market responses to team strategic maneuvers. Referees or controllers are there to ensure that participants are adhering to the rules. All of the aforementioned factors can make planning and executing a business wargame exceedingly costly, complex, and time consuming.

2.2.2. Framework 2

Another framework that emphasises the importance of keeping business war-games simple by avoiding the use of outside consultants and complex software that analyses each team's actions and market responses, because simulators typically fail to appropriately foresee results. A simple, rapid, low-cost, and realistic business wargame can be used to improve decision-making quality or predict the impact of a wide range of competitive actions on a firm. Furthermore, role-playing is thought to be a more accurate predictor of human and organizational behavior than advanced computerized solutions.

Another Business war-gaming session process framework is shown in Figure 2

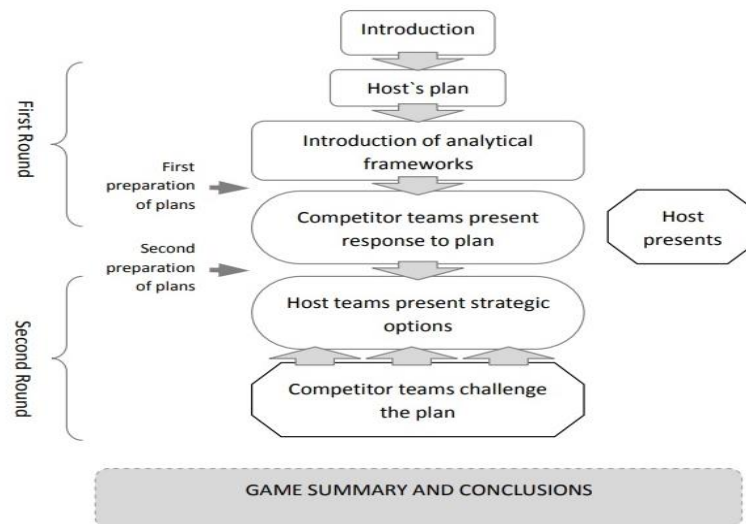


Figure 2.2: Business war-gaming framework 2

The majority of business war-games seek to address two fundamental questions: what competitors will do and how can we, as a company, be wiser than they are.

The first framework for business wargaming focuses on creating a new plan, whereas the second framework focuses on testing an existing strategy. This is referred to as landscape games and test games, and once a circumstance has been determined, selecting the sort of game is essentially done.

2.2.2.1 Landscape Games

The below mentioned questions can be answered by landscape games:

- i. What will competitors do?
- ii. How can we outsmart them?

The basic purpose of these games is to discover and analyse the competitive environment in order to place the company in the best possible position given current and future market conditions, as well as potential rival replies. Landscape games should be utilised to better comprehend a company's market position, according to this research.

2.2.2.2 Test Games

Test games are employed for a somewhat different reason than landscape games in that they solve comparable core questions.

- i. How will competitors react to our plan?
- ii. How can organization proof the plan against our competition?

Test games are used to compare a present strategy to possible responses from the market, competitors, government, legislators, and suppliers, among other things. Because it is more realistic for a brand team or new product group to design a strategy and then test it against the multiple implications closer to the implementation of a specific plan in larger organisations, these are the most prevalent types of business war-games that are conducted.

2.2.2.3 Identifying the Competition

For business war-games, direct competitors who are similar, use similar techniques, or create similar products are typically chosen. When there are a lot of competitors to include in a business wargame, the biggest player or the one with the biggest market share is usually chosen.

2.2.2.4 Creation of Teams

The organisation of teams is crucial in the creation of a business wargame. Participants should be separated into competing teams and offer their knowledge and experience in a variety of sectors.

It should be people who:

- i. due to work experience or other contacts, can characterise competitiveness quite well.
- ii. will enthusiastically support the outcomes of a corporate war-gaming session.
- iii. have a thorough understanding of the product or market

It is critical to have a team that represents the firm that's hosting the game, because they'll be the ones doing blind spot analysis to find flaws in the planned plan.

Because those people provide a critical mass to enliven the session and bring a variety of perspectives to the strategy, team sizes should be limited to 12 – 48 persons who represent two to six competitor profiles.

2.2.1.5 Collection of Competitive Intelligence

Business war-gaming sessions was thought to be the only means for gathering external data in a methodical manner, which is subsequently utilised by participants in a role-playing competition.

Following that, competitive intelligence is a large portion of a session, and competitive intelligence is utilised to grasp industry specifics and rival traits.

Before and during the war-gaming session, participants are given information about their opponents to help them role-play their opponents and create credible characters.

2.2.1.6 Summarizing Business War-gaming Framework

The entire structure requires two important procedures before launching a business war-gaming session, as shown in Figure 4. The design process is the initial step, and it has two primary objectives. Determine the issue and application area before deciding on the type of game to be created, such as a game to test a strategy or a game to assess an organization's existing strategic positioning. The collection of intelligence is the second important phase, while the first purpose is to identify market features and competitors in the business where war-gaming will take place. Teams should be formed in the meantime. The second goal is to gather knowledge on selected competitors for the business war-gaming and how they operate and perform in the particular industry from a variety of sources, including journals, databases, and questionnaires. Before performing a high-quality business war-game session this will provide considerable insights into any of the situations indicated in the section's start, these two preparations are essential.

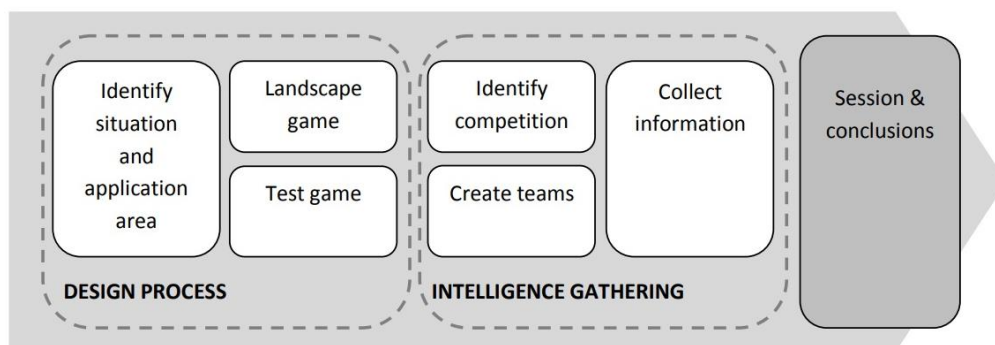


Figure 2.3 Summary of the Framework

2.3 Summary of Reviewed Literature

The following literature was gathered through secondary desk research on platforms such as,

- PubMed, Scholarly, Journal of Business
- Company and Third-party websites
- FDA database and published documents

Author	Year	Aim	Key Findings
Oliver Schwarz	2011	The purpose of this study was to introduce commercial wargaming as a technique for evaluating ex ante strategy. This article examines the relevance of commercial wargaming in finding answers to criticism of existing methodologies such as scenarios and computer-based simulations.	-Capability of business wargaming in criticizing computer based or situation-based stimulations -Ability of managers to make business strategy discussions base on the environment
Kurtz J.	2000	The aim of this whitepaper was to discuss the complexity of wargaming exercises and the effect on its participants	-Experience in wargaming will lead to better results -Participant engagement necessary for the success Participants mentally fatigued after intense session -Data generated after an exercise can be overwhelming -Participant believe in the process only on seeing results
Jan Oliver Schwarz	2020	The aim of the study is to, -discuss the strategy development process with or outside the organization to a large group -the extend of impact wargaming can have in open strategy planning	-Offline wargaming had a greater impact on the overall performance of the participants -Top management, different hierarchical level involvement necessary -Diverse profile needed to understand strategies in different departments -Wargaming and scenario planning a part of the open strategy process, but cannot be used as the only tool
Jan Oliver Schwarz Rene Rohrbeck	2013	The aim of the paper was to discuss the relevance of wargaming for corporate foresightedness	-war gaming and scenario planning a crucial step in learning out the strengths and weakness of the competitors(new/old)

			-Estimating their strategic moves through trend and scenario analysis such as, possible development pathways, change drivers, etc.,
Matthew Bradley-Ho Maik Chu Jason West Lincoln Crooks	2018	The purpose of this study was to identify internal capabilities through competitive actions developed as a contingency plan to avoid challenges from the external environment and address strategy misalignment in a business.	-Wargaming helped in understanding and visualizing internal strengths and weaknesses, which were not apparent otherwise. -wargaming helps understand human behavior which could be difficult to duplicate in a more professional business setting
Jay Kurtz	2003	The aim of the paper is to discuss the importance of wargaming in vigorous business circumstances	-Insights can be drawn in the initial stages from the data gathered -wargaming leads to actionable results -Realistic approach necessary to ensure the success of the exercise -Qualitative and Quantitative data used to make arguments
Johnson DD, McDermott R, Barrett ES, Cowden J, Wrangham R, McIntyre MH, Peter Rosen S.	2006	-Aim of this study was the investigate the role of aggression, gender, etc., leading to overconfidence in wargames	-Testosterone was said to act as a mediator in creating a false sense of positive deception -Men showed prominence of over-confidence when compared to women

Table 2.1: Summary of the reviewed literature

Chapter 3

METHODOLOGY

3. Methodology

This section will detail the study's concept and methodology, as well as an organized roadmap for the author to address the specified research questions and achieve the study's goal.

3.1 Research Question

What is business war-gaming application and its utility in go-to-market strategy?

3.2 Research Objectives

1. To examine the practical applications of business war-gaming in product launch strategy across several industries
2. To understand the utility of business war-gaming exercises in formulating specific GTM strategies prior to a product launch
3. To assess the key building blocks around a pragmatic business war-gaming exercise to be conducted across major industries (with med-tech as a reference)
4. To examine the use-cases of business war-gaming in improving value propositions and communication strategy prior to a product launch

3.2. Research approach and strategy

To answer the above-mentioned study objectives, a standard approach for this study was established. A literature search was started first, depending on the research questions presented. Articles and journals were the primary sources of material, which helped to establish a theoretical foundation for the thesis and to comprehend the business war-gaming sessions. After it, data was collected from the secondary sources to create the competitive intelligence reports. Competitive Intelligence is an important component of a war gaming session that participants employ when role-playing the competition. Later, the obtained data was evaluated in real-time sessions to draw findings relevant to the thesis's goal.

A case study technique was chosen for the completion of this thesis, considering the context, time constraints, and resources.

3.3 Data Collection

In this research, collection of qualitative data was done. Qualitative data allowed understanding the competitors profile and their strategy as well as allowed for perception and experience in relation to the research. In addition, qualitative data allowed for a in-depth analysis and the well-defined explanation of the research question, as well as the sharing of experience and introduction of a broader sense of the subject matter.

3.4. Data Analysis

The data used in the completion of this thesis originates from a single source, namely secondary/desk research, which was conducted for the purpose of obtaining data for several rivals. To support the collected data secondary sources such FDA documents, third-party data were used.

The qualitative analysis based on secondary data was organised around certain themes, with comparable responses clustered together to make it easier for the customer to see the results.

Chapter 4

RESULT and DISCUSSION

This part includes both the observations and the analysis of secondary research data. In this part of thesis author will describe the collected information about competitors' product as this information was crucial for the business war-gaming.

Due to the company confidentiality and T&Cs, details of only one competitor of the client will be revealed in this section. The client's competitor was selected based on value delivered by its product under the same category product of the client.

One of the competitors for the competitive intelligence profile was United Imaging – a med-tech firm. Details of their PET/CT scanner known as UMI 550 will be revealed here to understand the competitor product and the corresponding value delivered.

4.1 Competitive Intelligence Profile

A. Product Overview:

The uMI 550 makes digital PET/CT accessible to all. The uMI 550 is equipped with uEXPLORER PET technology, which allows for clinical versatility while also preventing obsolescence.

The uMI 550 is United Imaging digital PET/CT system in the performance segment. The system received its FDA 510k clearance in October 2018. It was launched at the 108th RSNA held in the year 2018. It received the FDA clearance for a few software upgrades in August 2020 and was again introduced with the uAI HYPER DLR technology.

B. Key Features and Benefits:

2.9 mm ultra-high NEMA PET resolution

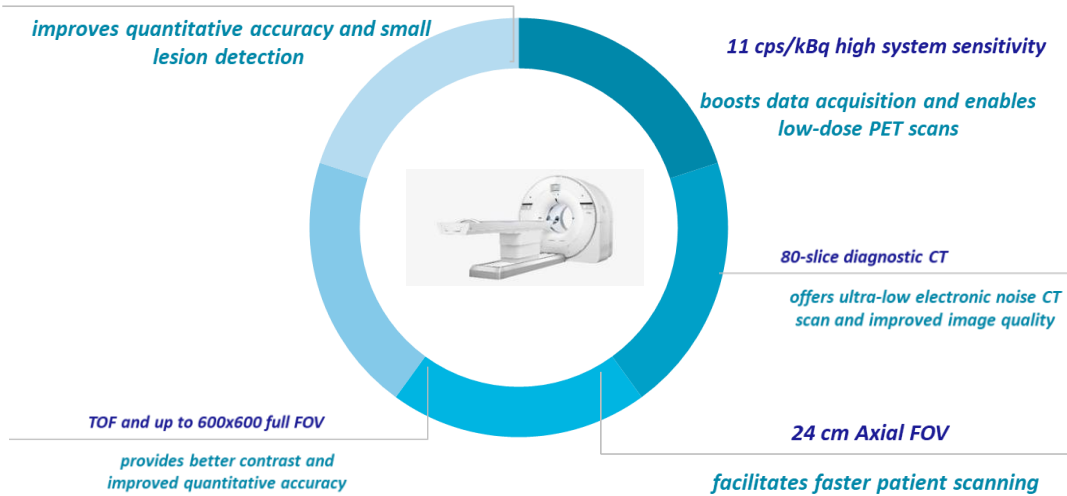


Figure 4.1 uMI Benefits and Key Features

C. Key Value Proposition

Type	Value
Clinical	• Improved quantitative accuracy • Small lesion detection • Better contrast • Low-radiation dose • High resolution image • Enhanced spatial resolution • Image Reconstruction • Provides individualized solutions • Better Head motion compensation • Provides exquisite visualization of fine vascular structure • Post- Processing – Oncology application
Operational	• Improved Workflow • Faster patient scanning • Ultra-Low-Noise CT • Higher efficiency • Increased system utilization • Boost data acquisition • User-friendly design
Financial	• Increased patient throughput • Reduces cost of operation • Automated quality control • Reduced TCO for operations

Table 4.1: Key Value Propositions

D. Technology Overview

1. Silicon Photomultiplier Technology (SiPM): In the uMI 550, SiPM -based detectors with LYSO crystals size of 16.3mm are used. By enhancing quantum efficiency, it increases image quality and lowers signal loss. SiPMs are made up of very tiny photosensitive cells that operate in the mode known as Geiger, which generates a discrete electronic signal when an avalanche of light occurs.
2. 80 Slice CT Scanner: Diagnosis with 80 slices CT is based on a new Z-Detector, which has extremely low electronic noise and enhances picture quality dramatically. It provides high-resolution CT scans to visualise the fine details of small anatomic structures, with 34,560 elements, 0.55 mm individual element size, and 22mm coverage in the Z-plane.
3. Z-Detector: The Z-Detector produces almost lossless digitised signals, lowering overall image noise substantially. With 34,560 elements and a 0.55 mm individual element size, the Z-remarkable Detector's electrical noise performance exposes an ideal signal-to-noise ratio (SNR) and image quality.
4. 2.9 mm ultra-high NEMA PET resolution: It results in the improvement of quantitative accuracy and detection small lesion. With 2.9mm NEMA resolution and PSF iterative reconstruction technique, uMI 550 can further enhance spatial resolution to 1.4mm. TOF technique and up to 600x600 full FOV reconstruction matrix provide better contrast and improved quantitative accuracy.
5. LYSO (lutetium-yttrium oxyorthosilicate) Crystals: It produces significantly lighter and so enables the construction of high-resolution block detector systems with minimal spatial resolution loss.
6. 24 cm Axial Field of View (FOV): Compared to standard 16 cm axial FOV PET/CT, uMI 550 can acquire a whole-body scan in four beds within eight minutes. High-speed scanning increases patient throughput and system utilization rate.

E. Digital Solutions

1. Intelligent Head Motion Compensation Technology: Image quality can be significantly harmed by head motion during PET brain imaging. Intelligent Head Motion Compensation Technology was implemented in the uMI 550 to restore image quality and quantitation. It employs a data-driven motion estimate strategy that employs

a pre-processing technique that allows for the use of very short duration frames, decreasing intraframe motion.

2. Intelligent Digital Self-Gating Technology: Without external gating device, the intelligent digital self-gating technology automatically detects respiratory motions. MAC (Metal Artifact Correction) helps to reduce metal artifacts and keep the important surrounding structural details. MAC significantly reduces metal artifact when imaging patients with metal implants.

3. ILG (Integrated Light Guide) Digital Detector: ILG improves light collection efficiency and time resolution. The ILG detectors of the uMI 550 are made up of SiPMs and fine LYSO crystals of 2.6mm. It improves quantitative accuracy and small lesion detectability with 2.9 mm NEMA resolution. It has superior sensitivity and resolution when compared to standard analogue technology.

F. Product Installed Base

Region	Installations
US	- United Imaging had installed its first uMI 550 at Emory Johns Creek Hospital, then the first of its kind in the Georgia region itself. - United Imaging in June 2020 that it has shipped its 8,500th system, an uMI 550 digital PET/CT bound for (UTHealth). - Southwest X-Ray LP, US had installed uMI550 in its outpatient facility.
China	In July 2020, Changzhi City People's Hospital installed its first dedicated device uMI 550 in PET/CT region.
New Zealand and Africa	- A medical group – Mercy Radiology in New Zealand had installed its first ever digital PET/CT - uMI550 and became first in region to offer digital PET/CT. - Wits Donald Gordon Medical Centre in South Africa had installed the first digital PET/CT in its facility offered by United Imaging uMI 550.

Table 4.2 Product Installed Base

G. Technical Specifications

CT Specifications		PET Specifications	
Scan Modes	Topo, Axial Scan, Helical Scan	Detector design	Integrated light guide digital detector
Z-plane coverage	22 mm	Scintillator material	LYSO (Lutetium-yttrium oxyorthosilicate)
Size of detector element in Z-plane	0.55 mm	Scintillator dimensions	2.76mm×2.76mm×16.3 mm
Number of element per row	864	Number of detector rings	84
Number of detector row	40	Number of image planes	167
Number of detector	34,560	Axial field of view	24 cm
Maximum slices generated per rotation (multi-slice capability)	80	Metal Artifact Reduction	MAC
Minimum slice thickness	0.55mm	Sensitivity	$\geq 10\text{cps/kBq}$
Maximum sampling rate	Up to 4800 views per 360°	Spatial resolution	Axial FWHM@1 cm $\leq 3.5\text{mm}$
Image Matrix	Up to 1024 x 1024		Transaxial FWHM@1 cm $\leq 3.5\text{mm}$
Rotation speed	Up to 0.5 sec per 360° rotation	Image matrix sizes	128×128, 150×150, 192×192, 256×256, 512×512, 600×600
		PET timing resolution (Time of flight)	395 ps FWHM
Other Specifications			
Display	24inch, 1920 x 1200		
Table Maximum Load	250kg		
Scan Field of View	Up to 500 mm		
Reconstruction Field of View	40mm-500mm, 40mm-600mm with extend FOV		
CT Aperture	700mm		
Power	50 kW		
mA Range	10-420mA		
kV Settings	70, 80, 100, 120, 140		
Image Spatial Resolution	High mode: $> 20\text{ lp/cm}$ @ MTF 0%		

Table 4.3: uMI 550 Technical Specifications

4.2 Result/Analysis

- After creating the Competitive Intelligence data packs for the client's competitors, the data packs in advance were shared with the client in order to give insights about their competitor's existing product/strategy.
- A business war-gaming framework was customized (by EMeRG) according to the clients need as well as the on various selected parameter which were considered while preparing the data packs.
- Three teams were formed including 10 members each from the client's organisation (own employees) and they were asked to wear the hat of competitor to be a part of the business war-gaming session which ran for two days.
- The EMeRG team worked as controller or referee and done blind spot analysis to find flaws in the planned plan.
- The below points mention the area which allowed client to reassess their planning for go-to-market strategy:
- The data-driven insights gained from the wargaming session, as well as the industry experience of the participants, assist ping in building a go-to-market plan for the new product launch. The wargaming exercise helped with creating a very in-depth product launch strategy, that considered the various need-gaps, strengths, and weaknesses of the competing products. This included insights around:
 - Image quality
 - NEMA Sensitivity
 - Use of AI and DL for image reconstruction
 - Time of Flight considerations
 - Design ergonomics
 - Detector material and design
 - Post-processing applications for Oncology, Cardiology, Neurology applications among others
- It helped the client to analyse fine tune their pre-launch strategy.
- It helped them to prepare post-launch contingency plans based on likely scenarios.
- The data packets aided in identifying the most common questions clients have when purchasing a product.
- The information on installed base gave the idea of competitor penetration within a geographical area.

- The general comparison of the three competitors based on digital and technological advancement aided the client in creating counterarguments for a sales pitch or a upcoming product launch.
- The wargaming exercise aided in analysing the behaviour of suppliers, customers, and competitors. It also aided in the identification of risks in places where there was ambiguity.
- By virtue of the wargaming exercise, the med-tech firm was able to refine its GTM strategies while taking into consideration the global and regional strengths of its key competitors.
- Organic sales strategies using internal salesforce as well as regional channel partners.
- Inorganic growth strategies including partnerships with regional market participants as well as innovative start-ups in AI dealing with molecular imaging and nuclear medicine.
- In addition, the communication strategy for the client was further fine-tuned. This included:
 - ✓ Refinement of value proposition statement
 - ✓ Roadmap for clinical and operational evidence to be generated across pilot customer sites in congruence with the local nuclear medicine regulations.
 - ✓ Planning for product collaterals including brochures, tech specs, customer testimonial videos and press releases.

4.3 Limitation of the Study

In this section author discusses about some of the limitations while conducting a business war-gaming exercise -

- Selection of the participants
- Some participants did not participate enthusiastically hence it became barrier to generate quality data
- Less participation of participants from different departments of client's organization
- Whole exercise was planned virtually hence it did not perform much in comparison to the physical one
- Due to limited information availability on the secondary platform, it challenged the EMeRG team to prepare more comprehensive data packs

- Majority of the participants from technical side hence it challenged to look for the point related to product strategy
- Limited availability of business war-gaming literature in the medical field

Chapter 5

CONCLUSION

5. Conclusion

The purpose of this chapter is to present the master thesis's primary conclusion. The findings in this section will be based on the overall master thesis goal and research question.

The overall goal of this study was to see if professionals in various industries (namely in the med-tech industry) face management issues during product launches that can be overcome through business war-gaming. Second, it aimed to investigate the practical application of business war-gaming in product launches across several industries. First and foremost, the author of this thesis aimed to respond to professionals from many industries who are confronting management issues that can be solved through business war-gaming. Business war-gaming helped professionals fine-tune their pre-launch strategy, build post-launch contingency plans based on possible situations, and increase their capacity to react, communicate, and execute at all levels of the organisation, according to the report. Because practitioners from all industries can connect to these situations, the author was able to infer that business war-gaming may be utilised as a tool to assist professionals in solving management difficulties.

The second goal was to investigate how business war-gaming is employed in product launches across a variety of industries. Many theories and reviews of literature, as well as real business war-gaming sessions, revealed that most practical sessions were conducted in small groups, with practitioners assessing only one competitor profile per team at a time. Furthermore, more product launch tools, and dedicated frameworks were used to facilitate the sessions. The business war-gaming conducted for the client in real-time also showed that it helped them to identify their blind spots in the already planned go to market strategy.

Following that, the thesis author claims that experts in a wide range of industries, employ business war-gaming, regardless of their size. Second, the activities are analogous to the actual theory of corporate war-gaming in several ways.

Chapter 6

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