Canine Oncology Market 2021

Animal Health Market Analysis

REPORT SAMPLE

Animal Health | Special Report

Animal Health

Special Report

Canine Oncology Market 2021

Animal Health Market Analysis

REPORT SAMPLE

IHS Markit®

Stonehaven Consulting

Cover image: GlobalP | Getty Images

REPORT SAMPLE

Contents

Chapter 1: Executive Summary

REPORT SAMPLE

Canine Oncology Market: Scope of the Report

Major cancer types in dogs

The scope of this report focuses on five major cancer types in dogs.

These are lymphoma, mast cell tumor, osteosarcoma, mammary cancer and melanoma.

Geographic focus

The geographic focus of this report is split into three regions – the US, EU-5 and APAC.

The figures for EU-5 include the UK, France, Germany, Spain and Italy. These five nations collectively represent ~50% of the European animal health market.

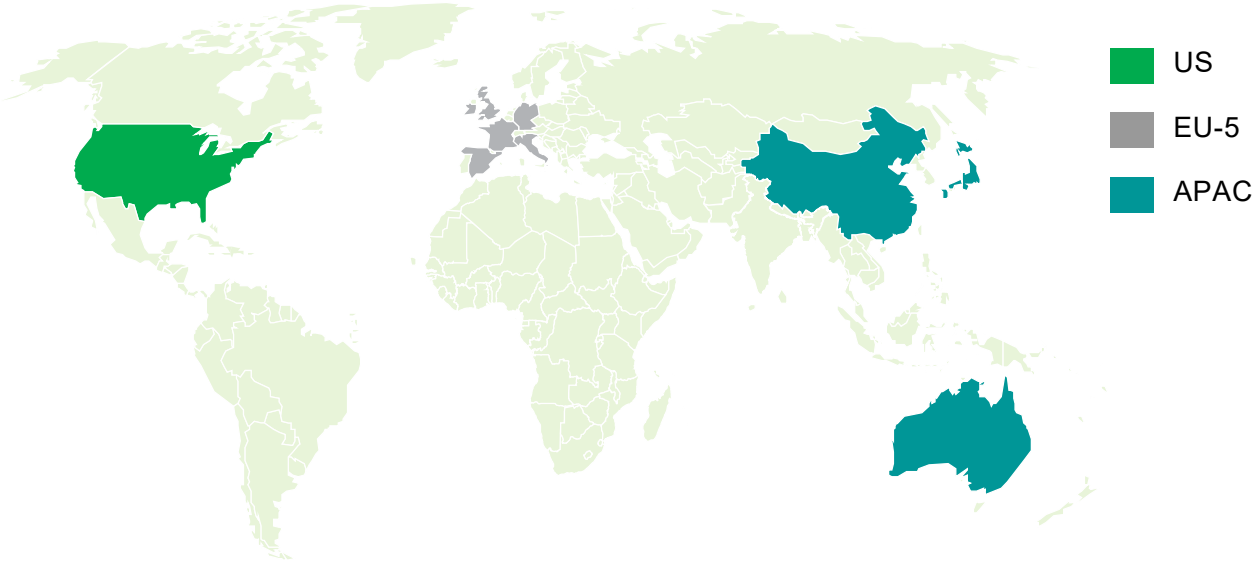
The APAC figures incorporate Japan, China and Australia. These markets amount to ~70% of the Asia Pacific animal health market.

Oncology treatment

The report focuses only on treatments that have direct veterinary oncology indications.

These mainly include surgery, chemotherapy, radiation therapy and innovative pharmaceuticals or immunologicals.

The report does not cover diagnostics in the area of veterinary oncology.



Executive Summary (1/2)

The canine oncology market is forecast to grow at a CAGR of X% between 2020 and 2035

Highlights

Our analysis shows the global market for canine oncology treatments will grow by around X% between 2020 and 2035. This translates to a CAGR of XX%.

We expect the canine cancer types with the highest CAGR from 2020 to 2035 will be lymphoma (X%), melanoma (X%) and osteosarcoma (X%).

Innovative therapies (such as animal-specific drugs) are expected to drive growth at X% CAGR. Radiation therapy, chemotherapy (human generics currently used off-label in vet medicine) and surgery, are expected to grow slower because they have been around for a long period of time and with limited advancement.

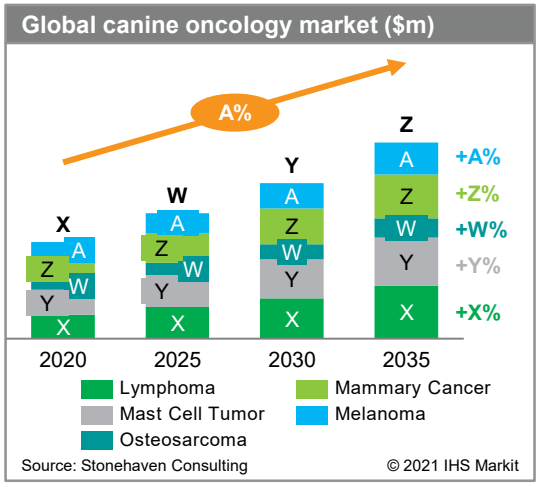
We project the US market will record a CAGR of X% during the 2020-2035 period, while Europe will see a CAGR of X%.

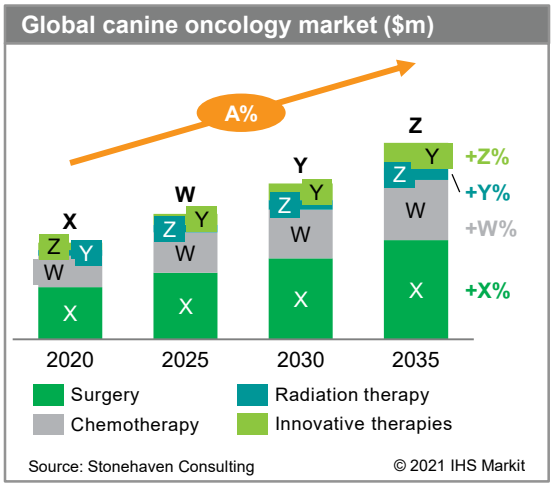
To-date, there are only a handful of canine-specific drugs commercialized in the US and Europe for oncological purposes. On-market therapies have been around for a significant time, while many new and innovative products have niche indications.

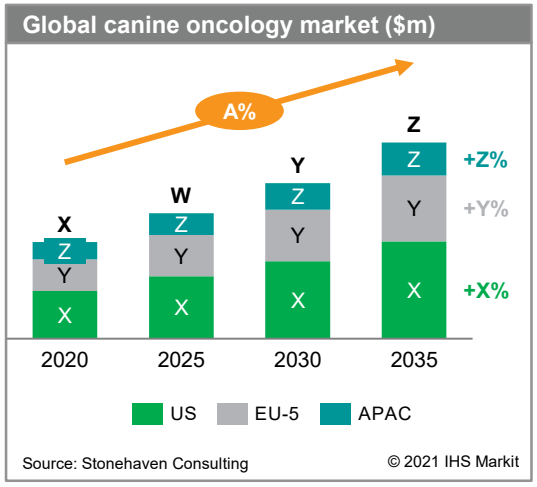
The overall canine oncology market is set for a relatively low CAGR in the coming years, until innovative and cheaper canine-specific drugs are commercialized. At the same time, the CAGR could ramp up as diagnosis rates and diagnostic technologies improve.

The first generation of innovative animal-specific cancer therapeutics have not quite taken off yet. The market is dominated by surgery and generic human drugs.

While innovation should be forthcoming from major players and start-ups alike, it is not clear if or when blockbusters will reach the market. There is currently little clarity on cancer programs being developed by the top animal health firms.







Executive Summary (2/2)

The canine oncology market is forecast to grow at a CAGR of X% between 2020 and 2035

We believe off-label human chemotherapy products currently represent ~X% of the canine oncology medicinal therapeutics market.

Naturally, this percentage will drop over time, when a range of improved canine-specific treatments are made available to veterinarians.

However, these products will need to be price-competitive with the low-cost human generics, or display a high level of efficacy, to convince vets to switch from familiar human chemotherapeutic generics.

Competitive landscape

This segment is likely to see innovation from start-ups being purchased or licenced by the animal health industry's larger firms.

This has already occurred between Elanco and VetDC, as well as Virbac and QBiotics. Notably, this plays on a wider trend seen in the animal health sector for companion animal specialty pharma innovation in areas such as dermatology, osteoarthritis/pain and others.

There are also an increasing number of diagnostic companies looking at canine cancer detection.

Key innovations

There is an opportunity to transfer the latest advances in human cancer immunotherapy to the canine cancer space. Specifically, monoclonal antibodies and checkpoint inhibitors could be in the first wave of canine cancer blockbusters.

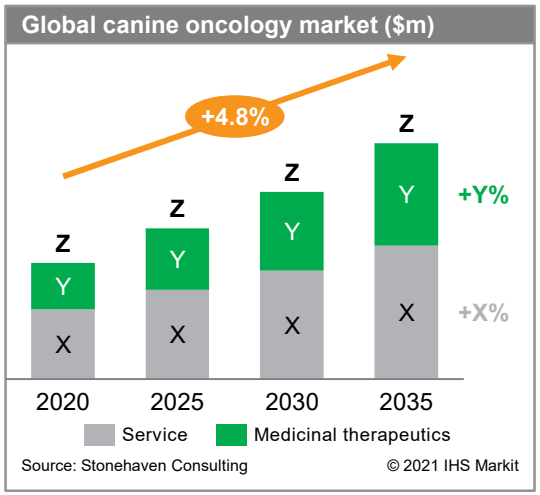
Uptake of gene-based diagnostics will pave the way for more innovative therapies to be introduced into this segment. On the long-term horizon is CRISPR and the gene-editing advances it could bring to animals.

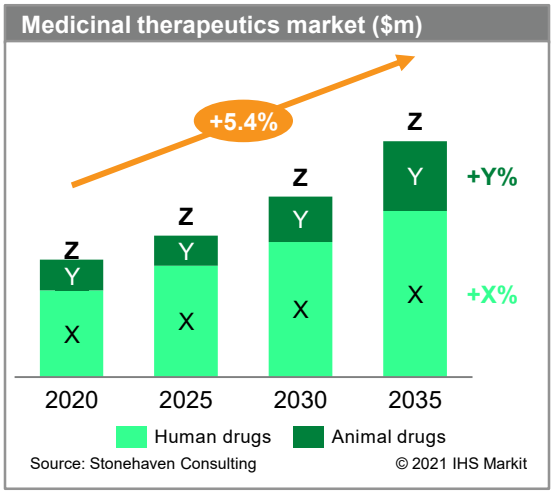
Regulatory developments

The US FDA and USDA have experience reviewing and approving pet cancer products. Vets can use human-approved drugs off-label in animals.

In Europe, recently assessed pet cancer products mainly used the centralized procedure. Where there is no suitable authorized vet meds, the cascade acts as a guide to the preferred order of unauthorized products.

In the canine oncology area, regulation evolution will likely follow the innovative therapies that are brought to market, which is common among many nascent areas of companion animal health.





Chapter 2: Regulatory Developments

REPORT SAMPLE

Regulations for Product Approval

US regulations

- **Both US FDA and USDA have recent experience reviewing and approving pet cancer products**

- *"Further information about regulations for product approval"*

EU regulations

- **Recently assessed canine cancer products have mainly used the European centralized procedure**

- *"Further information about regulations for product approval"*

There are currently many technologies and product types that are very new to the animal health sector, such as monoclonal antibodies. As more innovation comes through to commercialization, regulatory authorities will learn more about application, safety and efficacy.

"Further information about regulations for product approval"

Regulations for Drug Use

US regulations

- Veterinarians can use human-approved drugs for off-label purposes in animals

- *"Further information about regulations for drug use"*

EU regulations

- In the UK and Europe, the European Medicines Agency's Cascade guidelines apply for canine oncological drugs

- *"Further information about regulations for drug use"*

Chapter 3: Market Overview

REPORT SAMPLE

Companion Animal Health Market

A burgeoning sector with numerous growth opportunities in both developed and developing markets

Background

We forecast the global companion animal health market will grow at a CAGR of X% from 2020 to 2030.The current core product segments of this sector are pharmaceuticals, biologics and antiparasitics. However, specialty therapeutics are becoming more prominent – human biotech is lending crossover innovation opportunities to pet health.

«More market background information»

Growth drivers

The current and future growth rates in the companion animal health segment are being driven by an increasing global pet population, as well as rising spending by owners on their cats and dogs.

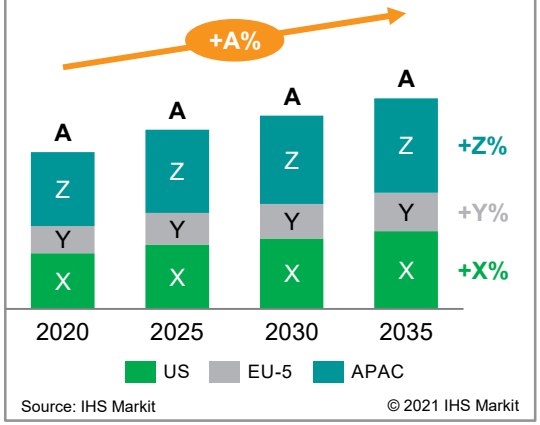
«More market background information»

Dog population

Our data shows the global dog population will grow with a CAGR of X% from 2020 until 2035.

«More market background information»

Dog population (in million head)



Source: IHS Markit © 2021 IHS Markit

Canine Oncology Market

Overview

At present, the canine cancer treatment space is an extremely nascent area dominated by surgery and human chemotherapeutic generics. The animal health sector is currently only just witnessing the **first phase of innovation** in this particular segment.

«More information on this topic»

.

Key market opportunities

There is an opportunity to **….**.

«More information on this topic»

Key market drivers

There is growing demand for new oncology drugs in ….

«More information on this topic»

Key market challenges

The price of cancer drugs ……

«More information on this topic»

Chapter 4: Current Standard of Care

REPORT SAMPLE

Overview of Current Standard of Care

Overview

To date, there are only a handful of canine-specific oncology drugs commercialized in the US and Europe.

«More information on this topic»

Based on treatment types, the market size of innovative therapies is projected to grow with a CAGR of +X% during 2020-2035, followed by radiation therapy with a CAGR of +X%, chemotherapy with a CAGR of +X%, then surgery with a CAGR of +X%.

The growth of all treatment types are driven by …

«More information on this topic»

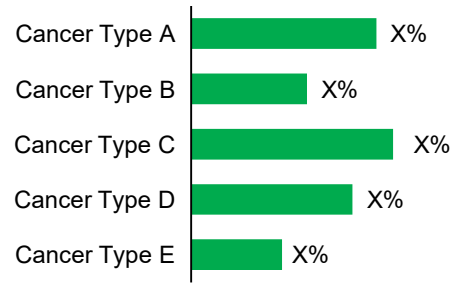
Use of unlicensed medicinal products

Human-use products

- Most chemotherapy drugs used in treating canine cancer are ....

«More information on this topic»

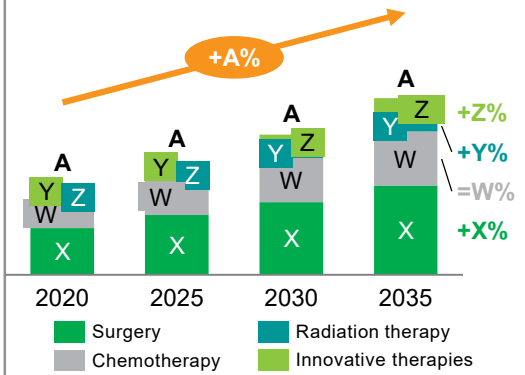
Human use drugs (%)[1]



1. Antineoplastic drugs only, excluding supportive care and pain management; Melanoma accounts for biologics (Oncept vaccine)

Source: Stonehaven Consulting © 2021 IHS Markit

Canine oncology market, by treatment ($m)



Source: Stonehaven Consulting © 2021 IHS Markit

Canine Oncology Market: Lymphoma

Lymphoma in dogs

- Most common canine cancer (accounts for X% of new cancer diagnoses in dogs in the US)
- Lymphoma is cancer from lymphocytes (white blood cells that are highly concentrated in lymph nodes, spleen or bone marrow). It is similar to non-Hodgkin's lymphoma in humans. Untreated dogs typically have X weeks to live after diagnosis
- **Most common types**:

«More information on this topic»

- **Clinical signs**

«More information on this topic»

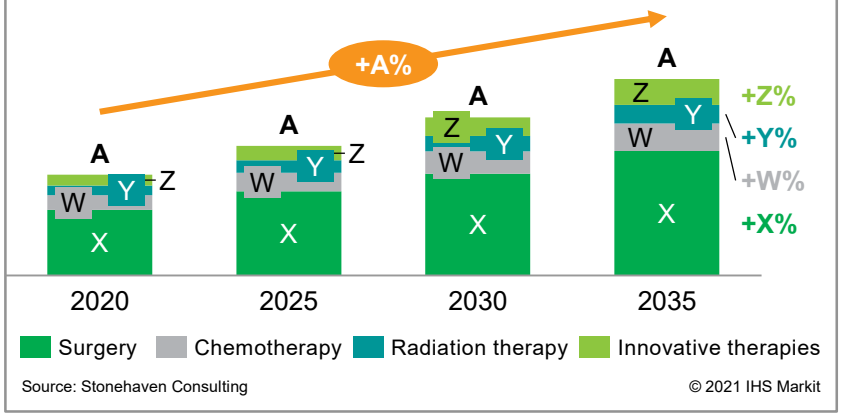
- **Diagnosis**:

«More information on this topic»

- **Current standard of care**:

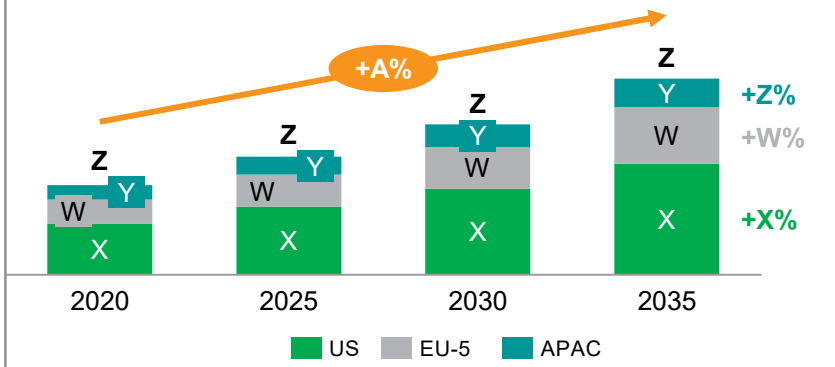
«More information on this topic»

Canine lymphoma treatment market, by treatment type ($m)



Source: Stonehaven Consulting

Canine lymphoma treatment market, by region ($m)



Source: Stonehaven Consulting

Canine Oncology Market: Mast Cell Tumor (MCT)

Mast Cell Tumor in dogs

- MCT is a cancer of mast cells. It is the most common skin cancer in dogs. Most dogs with MCT only develop one tumor
- Prognosis depends on the **grade of tumor** – Grade I tumors are considered benign (approximately X%) and can be treated with surgery; Grade II are most common (around X% of diagnosed cases) and are further classified into high or low grade, with over half of these cases treatable with surgery; and Grade III is aggressive and metastasized (X% of all cases) and typically treated with chemotherapy
- **Most common types**:

«More information on this topic»

- **Clinical signs**

«More information on this topic»

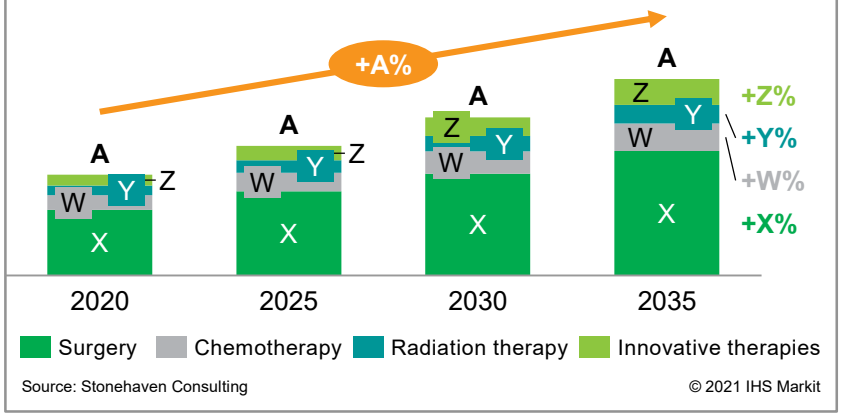
- **Diagnosis**:

«More information on this topic»

- **Current standard of care**:

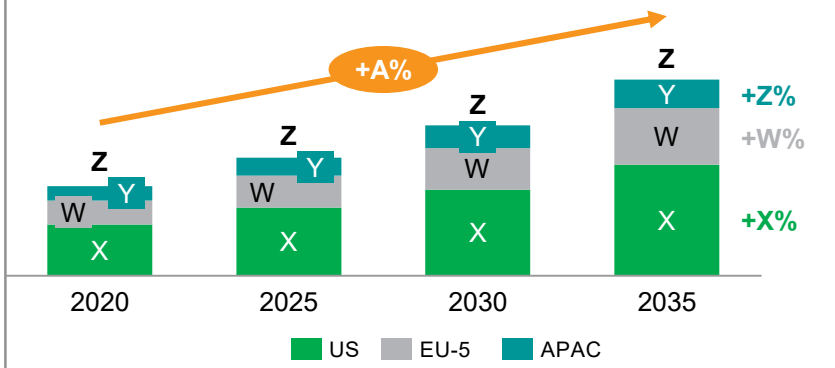
«More information on this topic»

Canine MCT treatment market, by treatment type ($m)



Source: Stonehaven Consulting

Canine MCT treatment market, by region ($m)



Source: Stonehaven Consulting

Canine Oncology Market: Osteosarcoma

Osteosarcoma in dogs

- Osteosarcoma is the **most common bone cancer** in dogs and is very painful. It has the same appearance as human pediatric osteosarcoma. It more commonly affects long bones (limbs), although other bones may also be affected. It has a **higher incidence** in large and giant breeds, such as the Irish wolfhound, Scottish deerhound, Great Dane, etc.
- At the time of diagnosis (usually after dogs show symptoms), X% of dogs already have metastasis. Untreated dogs typically survive for X months after diagnosis

- **Most common types**:

«More information on this topic»

- **Clinical signs**

«More information on this topic»

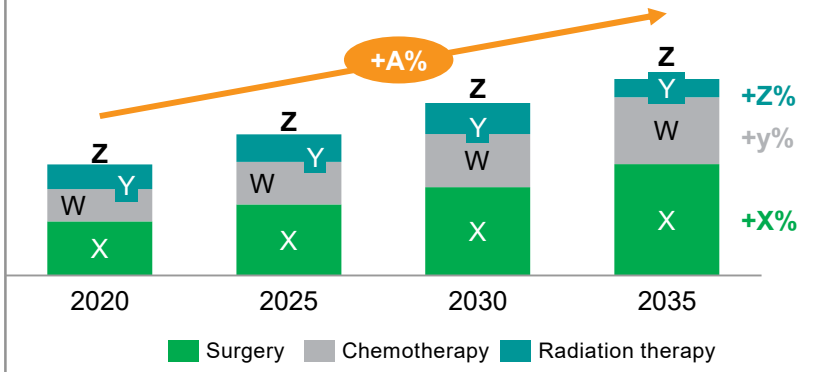
- **Diagnosis**:

«More information on this topic»

- **Current standard of care**:

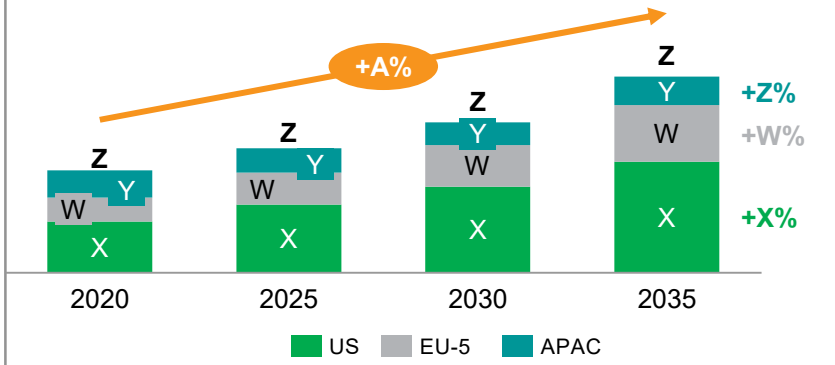
«More information on this topic»

Canine osteosarcoma treatment market, by treatment type ($m)



Source: Stonehaven Consulting
© 2021 IHS Markit

Canine osteosarcoma treatment market, by region ($m)



Source: Stonehaven Consulting
© 2021 IHS Markit

Canine Oncology Market: Mammary Cancer

Mammary cancer in dogs

- Mammary cancer typically occurs in unspayed female dogs, which is not very common in North America. This is due to routine spaying of puppies. Male dogs are rarely affected by mammary cancer

«More information on this topic»

- **Clinical signs**

«More information on this topic»

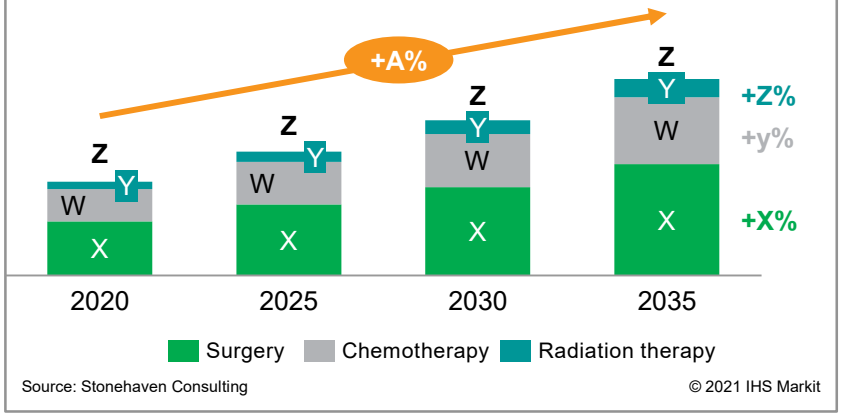
- **Diagnosis**:

«More information on this topic»

- **Current standard of care**:

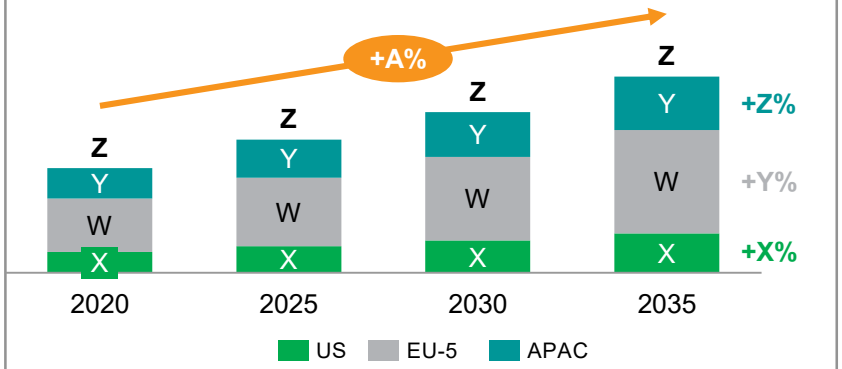
«More information on this topic»

Canine mammary cancer treatment market, by treatment type ($m)



Source: Stonehaven Consulting
© 2021 IHS Markit

Canine mammary cancer treatment market, by region ($m)



Source: Stonehaven Consulting
© 2021 IHS Markit

Canine Oncology Market: Melanoma

Melanoma in dogs

- Melanoma is a cancer of melanocytes. Most melanoma cases occur in the oral cavity but can occur anywhere in the body

«More information on this topic»

- **Clinical signs**

«More information on this topic»

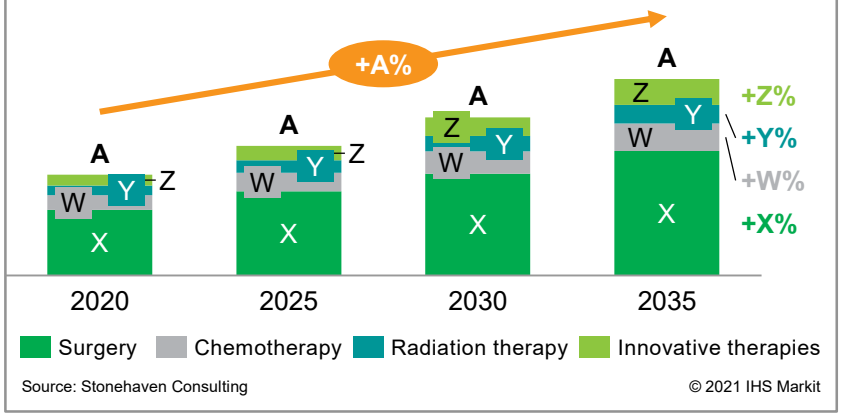
- **Diagnosis**:

«More information on this topic»

- **Current standard of care**:

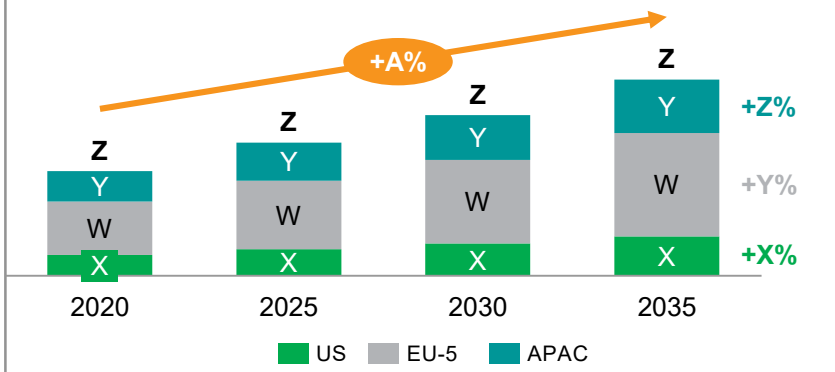
«More information on this topic»

Canine melanoma market, by treatment type ($m)



Source: Stonehaven Consulting

Canine melanoma market, by region ($m)



Source: Stonehaven Consulting

Unmet Needs in the Current Standard of Care

Top factors influencing pet owner decisions

- *«More information on this topic»*

Unmet needs in the canine oncology treatment market

- *«More information on this topic»*

Other factors

- *«More information on this topic»*

Canine oncology treatment – Unmet needs matrix

	Top Factors	Top Factors	Top Factors	Top Factors
Cancer Type A				
Cancer Type B				
Cancer Type C				
Cancer Type D				
Cancer Type E				

= satisfactory for majority of patients = satisfactory for ~50% of patients = satisfactory for minority of patients

Source: Stonehaven Consulting

Chapter 5: Competition and Innovation

REPORT SAMPLE

Overview of Competitive Landscape

Overview

- Animal health's big X companies have developed their own products or have acquired/partnered with start-ups in the oncology space. Most of the existing industry oncology pipeline focuses on .....

- *«More information on this topic»*

Key players

- The top X animal health firms are active in canine oncology via internal pipelines or through external partnerships...

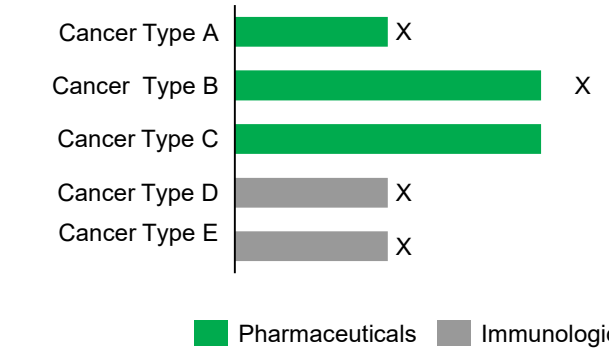
  - *«More information on this topic»*

Key technologies

- Innovation in this area may come with higher R&D costs than some animal health companies are used to…

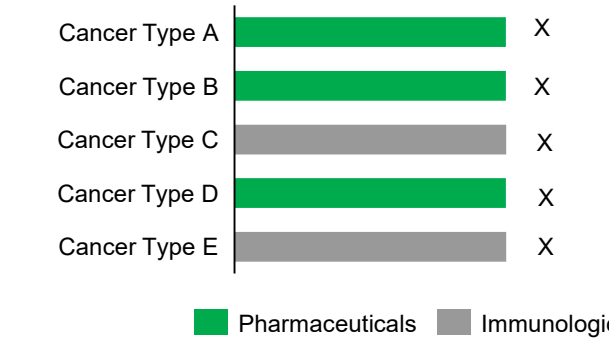
  - *«More information on this topic»*

Approved products for canine oncology (full or conditional)



Source: Stonehaven Consulting
© 2021 IHS Markit

Products in development for canine oncology



Source: Stonehaven Consulting
© 2021 IHS Markit

Key Players

Company X
- *"Information on company and products"*

Company X
- *"Information on company and products"*

Company X
- *"Information on company and products"*

Company X
- *"Information on company and products"*

Company X
- *"Information on company and products"*

Company X
- *"Information on company and products"*

Company X
- *"Information on company and products"*

Company X
- *"Information on company and products"*

Company X
- *"Information on company and products"*

Company X
- *"Information on company and products"*

Company X
- *"Information on company and products"*

Company X
- *"Information on company and products"*

Company X
- *"Information on company and products"*

Company X
- *"Information on company and products"*

Other notable start-ups
- ...

Approved Canine Oncology Drugs

Product	Company	Description
Product X	**Company Y**	*"More information on product, approval status, company, applicable diseases, etc"*
Product X	**Company Y**	*"More information on product, approval status, company, applicable diseases, etc"*
Product X	**Company Y**	*"More information on product, approval status, company, applicable diseases, etc"*
Product X	**Company Y**	*"More information on product, approval status, company, applicable diseases, etc"*
Product X	**Company Y**	*"More information on product, approval status, company, applicable diseases, etc"*
Product X	**Company Y**	*"More information on product, approval status, company, applicable diseases, etc"*
Product X	**Company Y**	*"More information on product, approval status, company, applicable diseases, etc"*

Canine Oncology Drugs In Development

Product	Company	Description
Product X	**Company Y**	*"More information on product, approval status, company, applicable diseases, etc"*
Product X	**Company Y**	*"More information on product, approval status, company, applicable diseases, etc"*
Product X	**Company Y**	*"More information on product, approval status, company, applicable diseases, etc"*
Product X	**Company Y**	*"More information on product, approval status, company, applicable diseases, etc"*
Product X	**Company Y**	*"More information on product, approval status, company, applicable diseases, etc"*
Product X	**Company Y**	*"More information on product, approval status, company, applicable diseases, etc"*
Product X	**Company Y**	*"More information on product, approval status, company, applicable diseases, etc"*

Next-Generation Technology and Human Health Advances

Key technologies in human oncology

It is increasingly likely monoclonal antibodies and immunotherapies deployed in human health will make their way into the veterinary medicine sector. This is likely to occur in other indications before cancer, such as in dermatology or pain/inflammation.

«More information on this topic»

The current key innovations in canine cancer treatment include:

«More information on this topic»

Key innovations in human oncology that could come to animal health

- *«More information on this topic»*

Chapter 6: Canine Oncology Market by Region

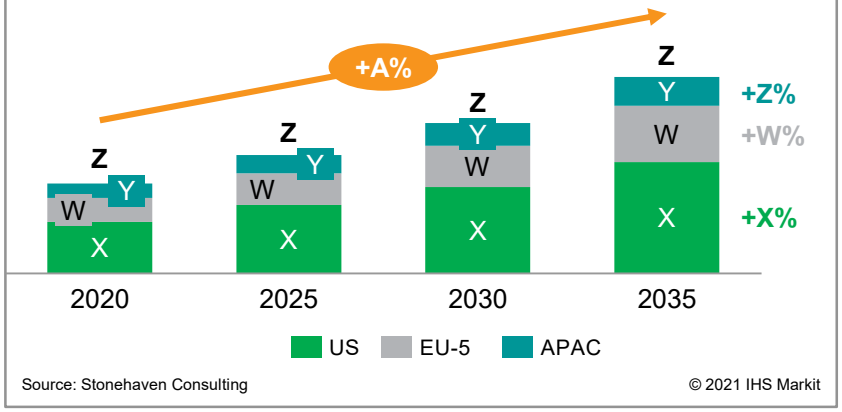
REPORT SAMPLE

Global Market Size and Growth

Overview

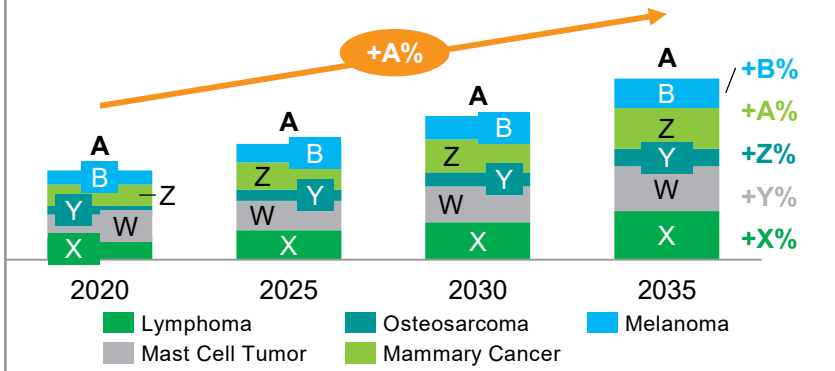
- The canine oncology market is anticipated to grow quickest in A with a CAGR of +X% during 2020-2035, followed by the B with a CAGR of +Y% and C with CAGR of +Z%, during the same period. The D is the largest market
- The Cancer X market size is expected to grow fastest with a CAGR of +X% during 2020-2035, followed by Cancer Y with a CAGR of +Y% and Cancer Z with a CAGR of +Z%. X and Y are expected to grow slower, with a CAGR of +W% and +Z% during the same period, respectively.
- The growth rates of all market sizes by cancer type are driven by ….
- *«More information on this topic»*

Global canine oncology treatment market, by geography ($m)



Source: Stonehaven Consulting
© 2021 IHS Markit

Global canine oncology treatment market, by indication ($m)



Source: Stonehaven Consulting
© 2021 IHS Markit

US Market Size and Growth

US market overview

- Veterinary oncology has expanded robustly in the US as a growing number of veterinarians have achieved specialized academic credentials in oncology and organized multi-speciality international networks

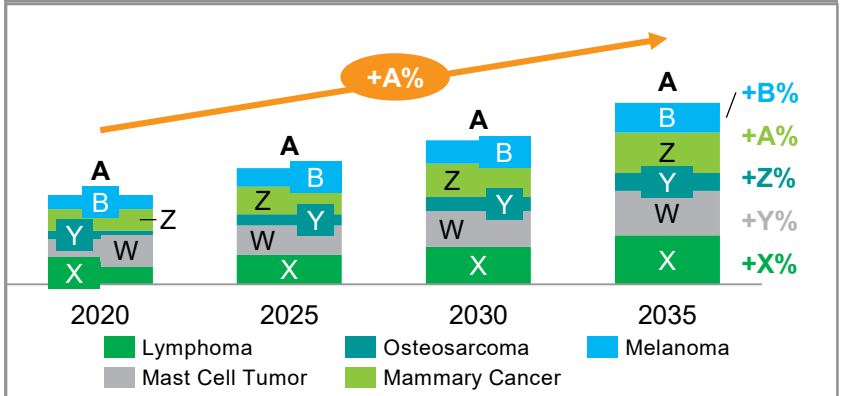
- *«More information on this topic»*

US value chain

- The number of vet oncologists has been growing at +X% CAGR per year for a decade. As of 2018, more than X vets in the US have achieved a formal credential in either medical oncology, radiation oncology or surgery

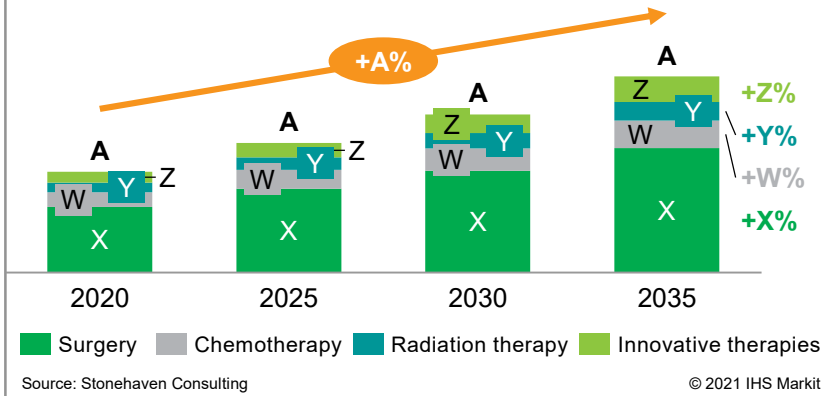
- *«More information on this topic»*

US canine oncology treatment market, by indication ($m)



Source: Stonehaven Consulting

US canine oncology treatment market, by treatment ($m)



Source: Stonehaven Consulting

EU Market Size and Growth

EU market overview

- Veterinary oncology has expanded robustly in Europe, as a growing number of veterinarians have achieved specialized academic credentials in oncology and organized multi-speciality international networks

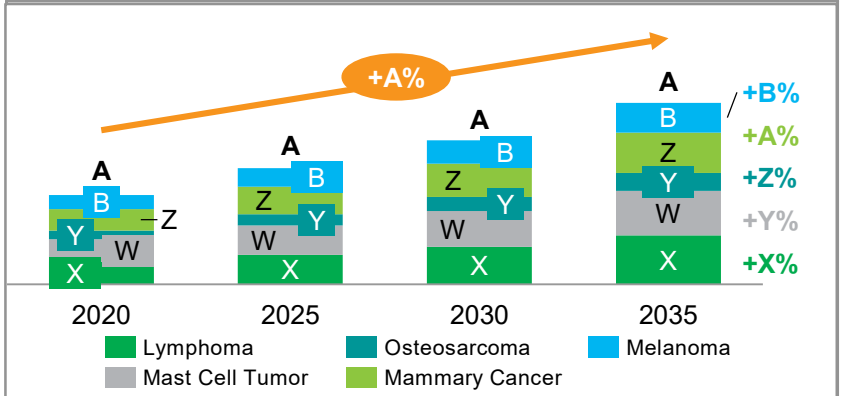
- *«More information on this topic»*

EU value chain

- The European Society of Veterinary Oncology has more than X members that are oncology specialists

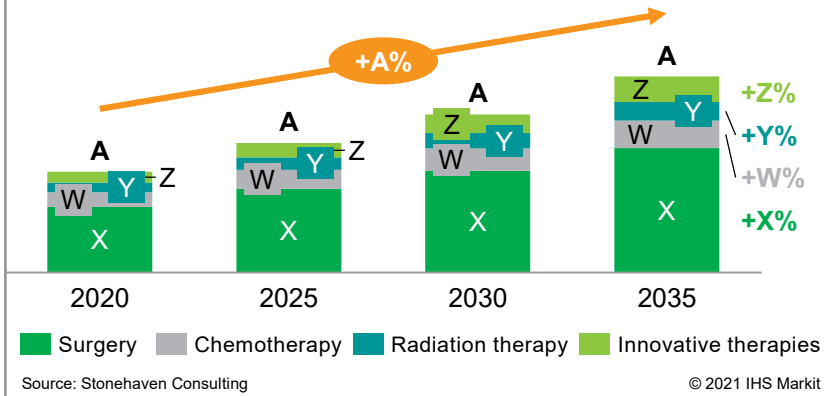
- *«More information on this topic»*

EU canine oncology treatment market, by indication ($m)



Source: Stonehaven Consulting

EU canine oncology treatment market, by treatment ($m)



Source: Stonehaven Consulting

Chapter 7: Market Sizing Assumptions

REPORT SAMPLE

Market Sizing Assumptions

	Cancer prevalence per region (%)	Diagnosis rate per region (%)	Treatment rate per region (%)	Average price per treatment per region ($)
Description	Triangulated from expert input, academic sources and Stonehaven Consulting estimates	Triangulated from expert input and Stonehaven Consulting estimates	Accounts for referral rates, insurance coverage, treatment cost benefit, cultural acceptance and other factors influencing pet owner decisions	Note this is not a price range. Accounts for weighted share and price of different treatments and treatment combinations
Cancer Type A	**X%** ≈A pp	**X%** +A pp	**X%** +A pp	**XK** +A% CAGR
Cancer Type B	**X%** ≈A pp	**X%** +A pp	**X%** +A pp	**XK** +A% CAGR
Cancer Type C	**X%** ≈A pp	**X%** +A pp	**X%** +A pp	**XK** +A% CAGR
Cancer Type D	**X%** ≈A pp	**X%** +A pp	**X%** +A pp	**XK** +A% CAGR
Cancer Type E	**X%** ≈A pp	**X%** +A pp	**X%** +A pp	**XK** +A% CAGR

Figures per region in 2020 (estimates built from academic papers and expert interviews)
Change from 2020-2035 (percentage point or CAGR)

Chapter 8: Report Authors and Expert Panel

REPORT SAMPLE

Report Authors

Joseph Harvey
Head of Animal Health
IHS Markit

As head of animal health, Joseph provides news and analysis regarding the global animal health market across a range of species and products. He conducts exclusive interviews with the sector's biggest companies and experts, as well as start-up firms. He also hosts webinars and gives talks on the industry. Having gained many years of experience in business journalism, Joseph started writing about animal health in 2012. He previously built his experience by reporting on the human med-tech and diagnostics sector. Joseph is a well-known figure in the animal health sector through his articles, interviews, podcasts and webinars. His specialist areas include analysis of business trends, M&A, industry rankings, IPOs, company strategy and R&D across the animal health industry.

Christine Hsu
Analyst
Stonehaven Consulting AG

Christine received her master's degree in Management from the London Business School and her bachelor's with honors degree from King's College London.

As an analyst at Stonehaven Consulting AG, she worked on several projects for private equity, investment funds, large animal health companies, and start-up clients, including projects in companion animal oncology. She previously worked with Deloitte Consulting focusing on transnational projects in consumer electronics, and with Willsonn Partners gaining valuable experience in corporate finance and data analysis.

Arthur Redpath
Senior Global Marketing Expert
Stonehaven Consulting AG

Arthur is a senior marketing executive with over 20 years' experience in the animal health, pharmaceuticals and agricultural industries, after graduating from Edinburgh University Royal Dick Veterinary College as a veterinary surgeon in 1987. He joined Novartis Animal Health in 2000 where he progressed to global leadership roles on the ruminant and the companion animal parasiticides marketing teams. In 2015 he joined Elanco Animal Health as part of the acquisition of Novartis Animal Health, where he assumed the leadership position of EMEA chief marketing officer. From 2017 to 2019 he took the role of global marketing excellence leader at Elanco, to develop the practices, execution and business performance impact of the function.

Expert Panel

We consulted several world-leading experts in canine oncology in the making of this report

Craig A. Clifford, DVM, MS, DACVIM (Oncology)

Craig is the director of clinical studies and a medical oncologist at Hope Veterinary Specialists in Malvern, Pennsylvania. Dr Clifford earned his DVM from Mississippi State University and his master's degree in animal science/virology from University of Delaware. He has authored and co-authored more than 50 papers and book chapters. Dr Clifford created the Veterinary Cancer Society's resident review session and the Northeast Veterinary Cooperative Oncology Group, and has served on the VCS executive board, ACVIM Examination Rating Committee, Residency Training and Credentials Committee, Oncology Pathology Working Group, and Standards of Excellence in Residency Education Task Force. Dr Clifford also serves on the scientific advisory boards for industry.

Douglas H. Thamm, VMD, DACVIM (Oncology)

Dr Thamm is the Barbara Cox Anthony professor of oncology, and director of clinical research at the Colorado State University Flint Animal Cancer Center. He is also a member of the Developmental Therapeutics Section of the University of Colorado Comprehensive Cancer Center and the Cell and Molecular Biology Graduate Program at Colorado State University. He has authored over 150 peer-reviewed publications and 20 book chapters in veterinary and basic cancer research and textbooks and is co-editor-in-chief of the journal *Veterinary and Comparative Oncology.* His clinical and research interests include novel targeted therapies for animal and human cancer and ways to integrate these therapies with existing treatment.

Chad M. Johannes, DVM, DACVIM (SAIM, Oncology)

Chad is an associate professor of oncology at Iowa State University. His industry experience includes time as the former medical director at Aratana Therapeutics, and coordination of the launch of Palladia – the first FDA-approved veterinary cancer therapeutic during his time with Pfizer Animal Health (now Zoetis). Dr Johannes' practice experience includes primary care, specialty care and academic settings. His areas of research interest include oncology therapeutic development, immunotherapeutics and effective management of treatment-related side effects.

Report Contributors

Ross Mulford
Consultant, Stonehaven Consulting AG

Sian Lazell
Deputy Editor, IHS Markit

Shahida Bano
Analyst, IHS Markit

Saman Tabtabaei
Product Manager, IHS Markit

Ian Hart
Managing Director, IHS Markit

Matthias Hofer
Managing Partner, Stonehaven Consulting AG

George Gunn
Founder and Partner, Stonehaven Consulting AG

IHS Markit Customer Care

CustomerCare@ihsmarkit.com

Asia and the Pacific Rim

Japan: +81 3 6262 1887

Asia Pacific: +604 291 3600

Europe, Middle East, and Africa: +44 1344 328 300

Americas: +1 800 447 2273

IHS Markit®

Stonehaven Consulting