



PHARBERS



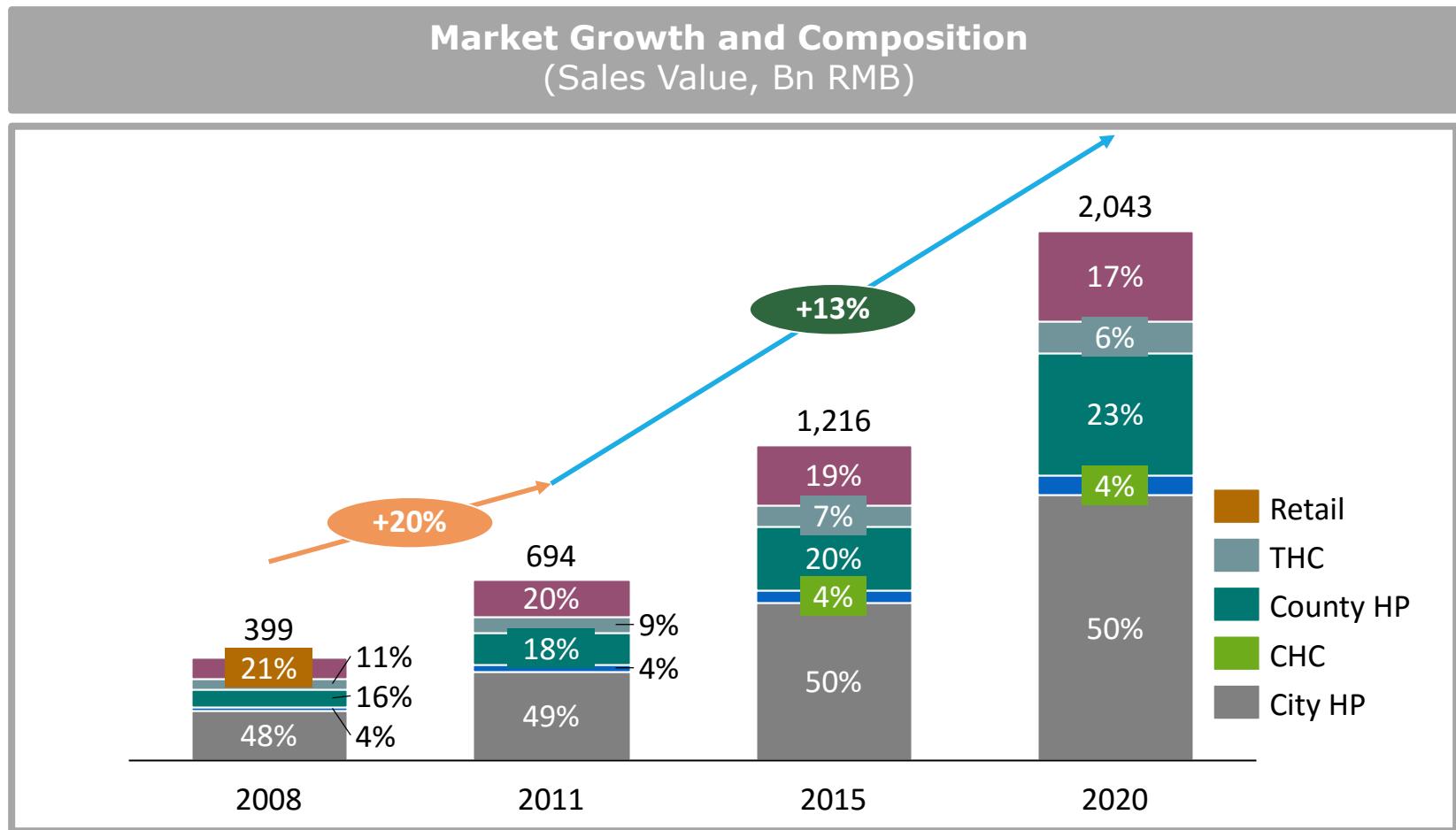
Promotion Effectiveness and Optimization Report

Pharbers Technology
June 2017

Contents

- 
- Project Objectives and Methodology
 - Data Preparation
 - Modeling Results
 - Promotion Optimization
 - Product Launch Strategy

Overall pharma market is still growing with slightly reduced pace



Source: China's Health Statistics Yearbook, NHFPC, BCG Report estimation

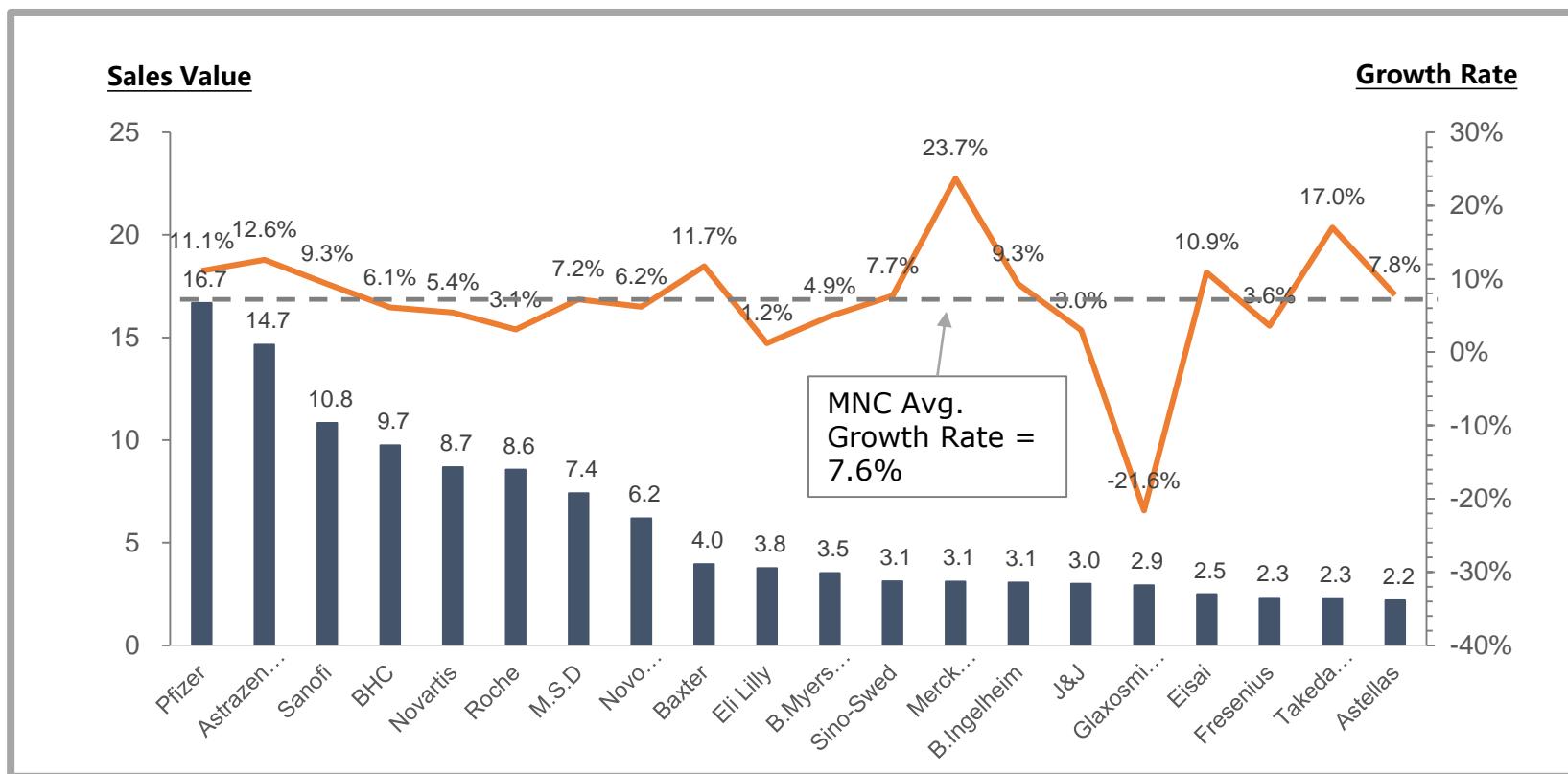
THC= Township Healthcare Center; CHC=Community Healthcare Center



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Astellas performs well among MNCs with annual sales over 2 billion RMB

Top 20 MNCs Sales Value (Bn RMB) and Growth Rate (MAT2016Q3)

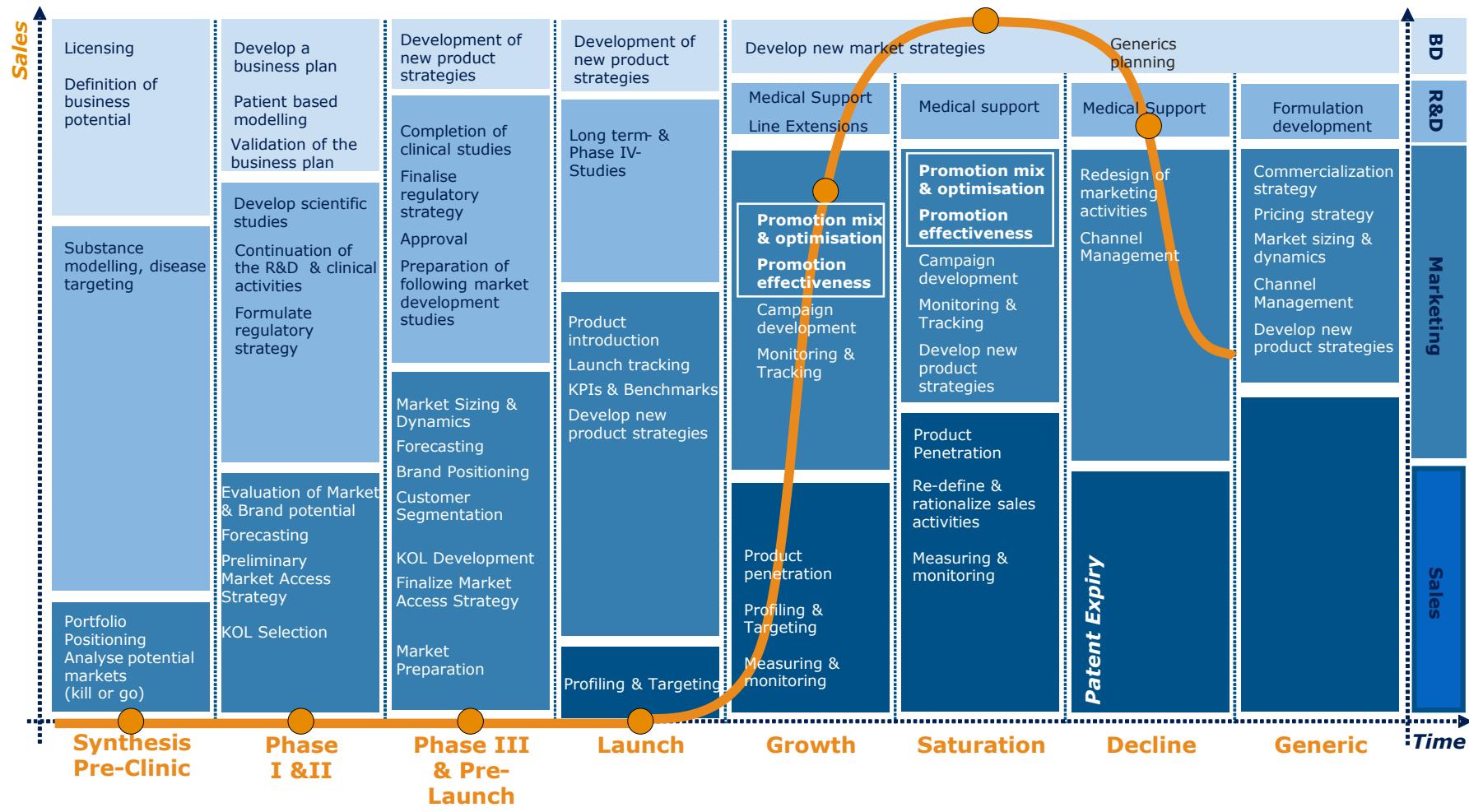


Source: IMS CHPA (Beds>100)

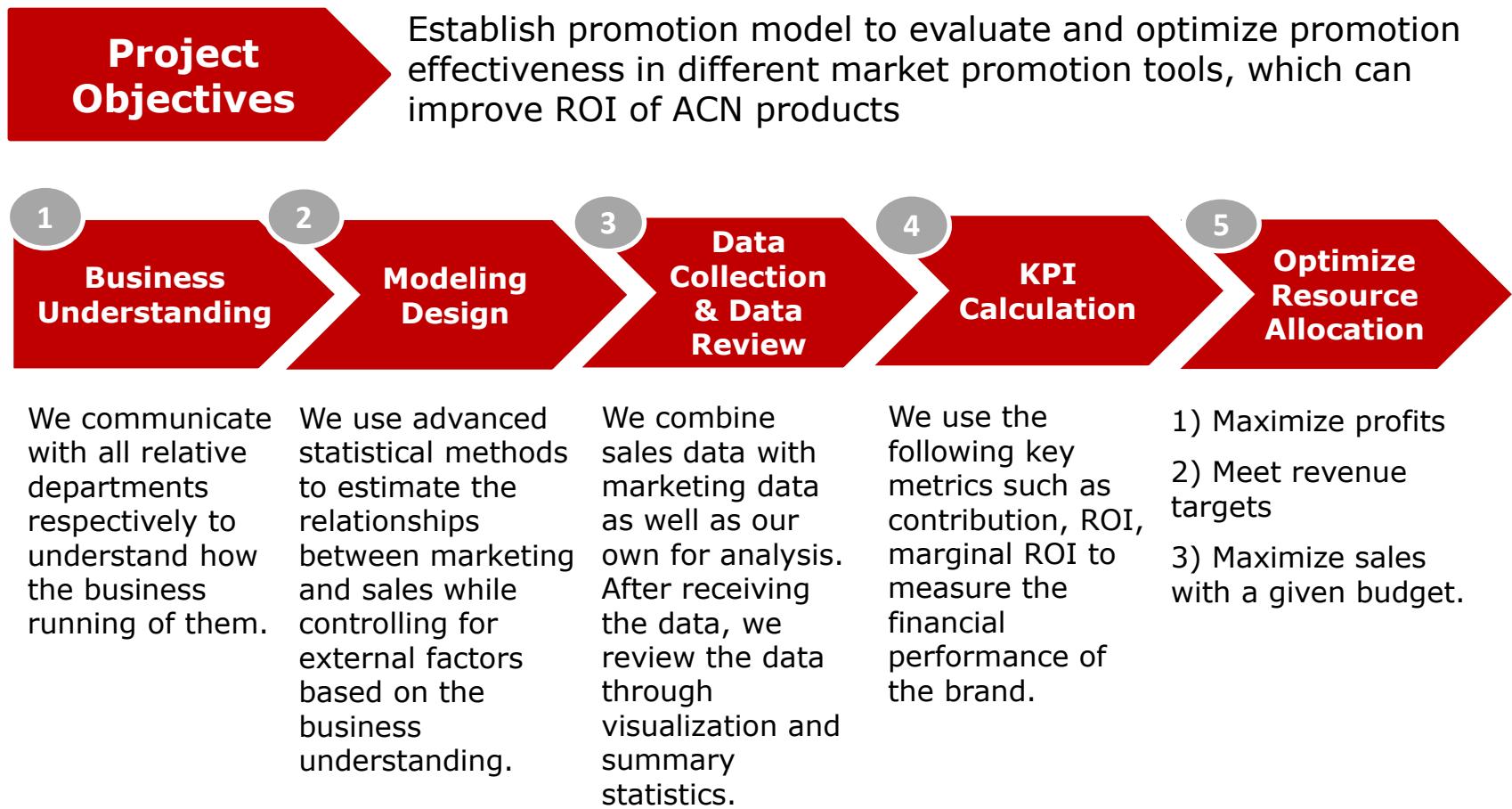


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Promotion effectiveness monitoring and optimization is important across products' life cycle, especially during growth and saturation stage



Main objective of this project is to help Astellas evaluate and optimize promotion mix



Key benefits of this projects

OPTIMIZATION AND FORECASTING

Customers can evaluate the promotional activities and gain much more insights for future marketing plan.

And design the best promotional mix and relocate resource allocation to improve ROI.

01

Better Promotional mix

Optimize [promotional mix](#) for different products and region and set up the time and frequency.

02

Better budget allocation

[Allocate the budget](#) in different products, region and promotion channel based on the best promotional mix.

03

Improving ROI

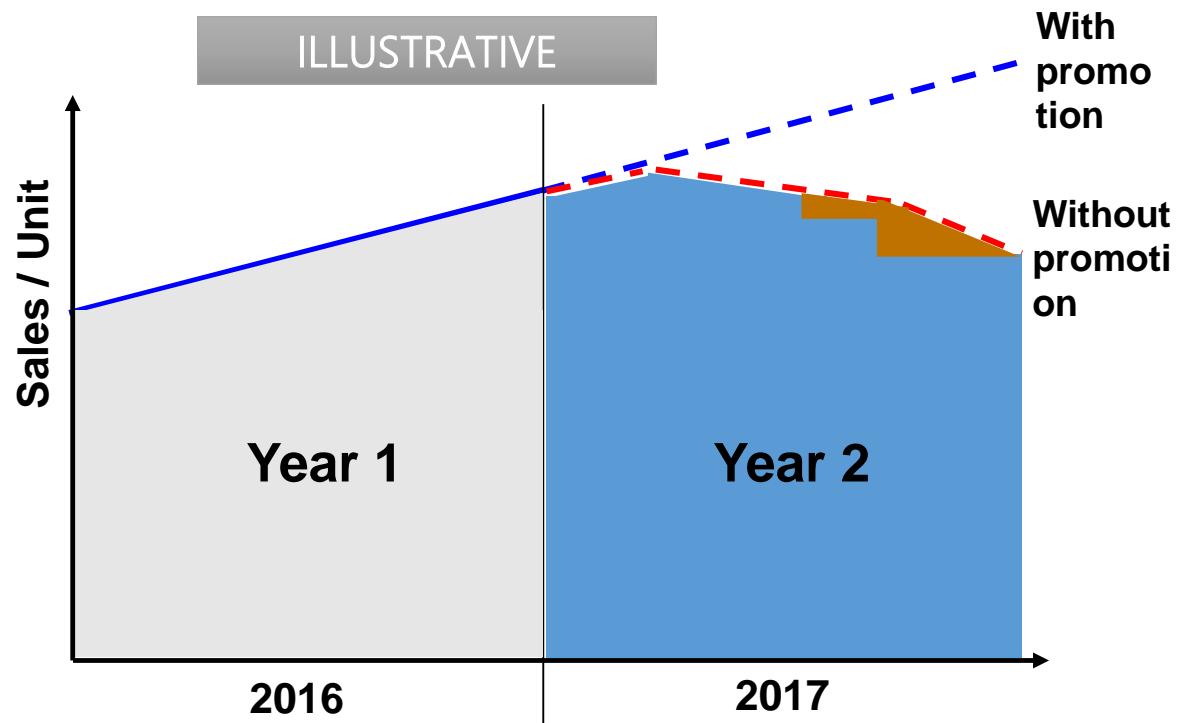
Cancel some [non-effective promotion](#) activities.



Key concept – Carryover

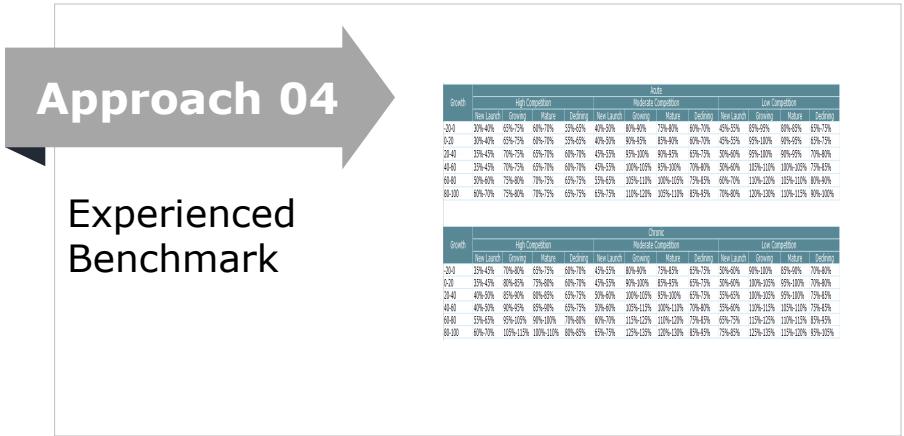
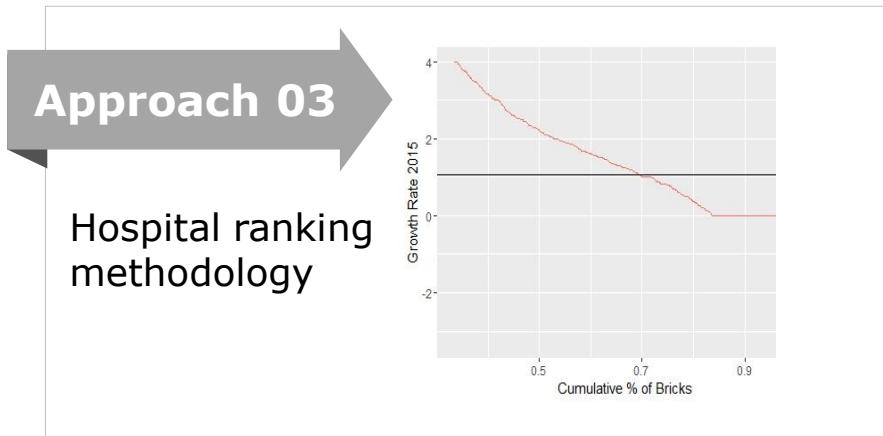
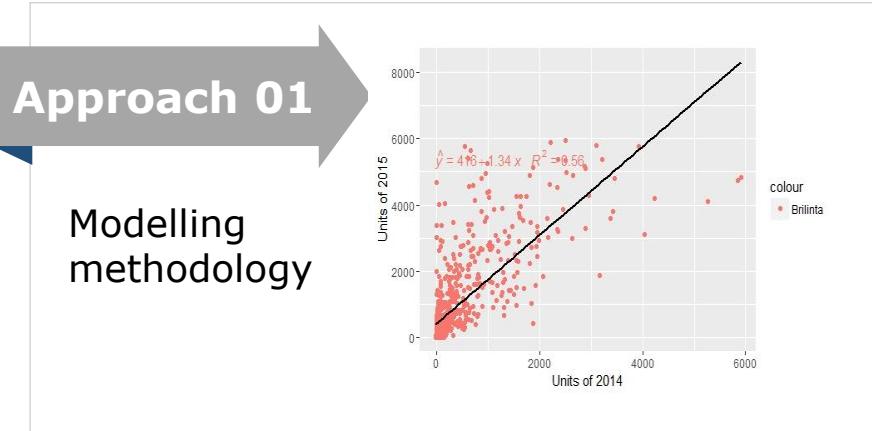
Carryover is defined as the proportion of sales that would be achieved in the following year if all promotion is to stop

Considering the carry over sales/units, we are able to understand how much incremental contribution from different investment

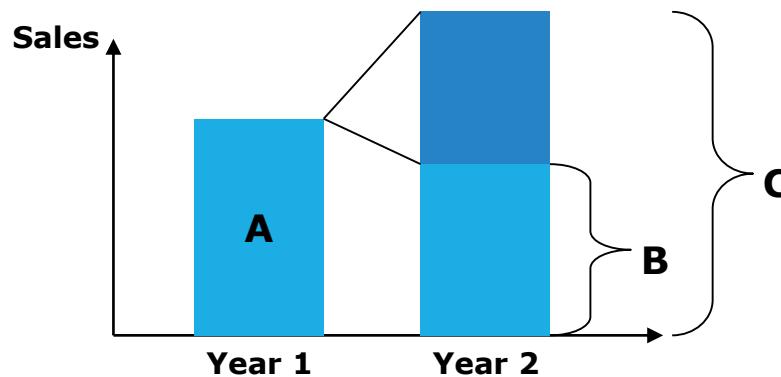


$$\text{Carryover} = \frac{\text{Sales/Unit in year 2016 with no promotion}}{\text{Sales/Unit in year 2015}} = \frac{\text{Value in Year 2}}{\text{Value in Year 1}}$$

We have leveraged 4 approaches to address the carry over estimation



Modeling approach is based on the correlation amongst sales revenue of consecutive years



B is the sales we would expect in Year 1 given no investment in Year 1

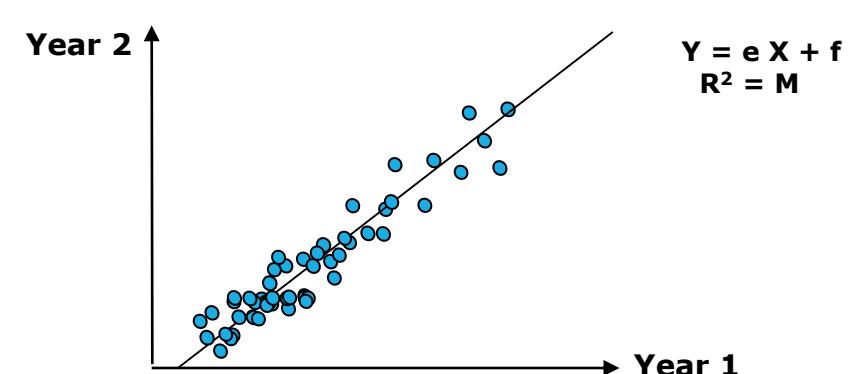
C is the sales in Year 1 given investment in that year

Growth = C / A (Use the sales revenue or volume of all the matched hospitals)

$$R^2 \sim B / C$$

Therefore:

$$R^2 * Growth = B / C * C / A = B / A = \text{Carryover}$$



Step 1: Find out the matched hospitals in the two years

Step 2: Use the sales revenue or volume of each matched hospitals for the scatter diagram (should pay attention to the price adjustment and the different specifications)

Step 3: Find out the linear relation and R^2

Step 4 : Carryover= $R^2 * Growth$

Actual hospital approach is based on the blank control groups and only hospitals with significant call frequency drop are considered

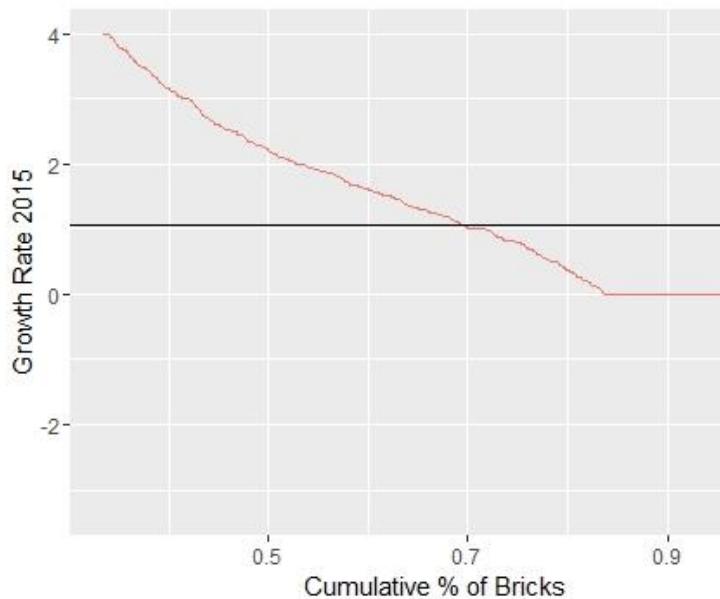
InsCode	InsNameC	2014	2015	call_decrease_rate
ZJJX002H	海盐县人民医院	686	1	-0.9985423
ZJJX005H	平湖市第一人民医院	299	1	-0.9966555
SCMY002H	四川省科学城医院	199	3	-0.9849246
HLJX003H	鸡西市人民医院	95	2	-0.9789474
GDGZ939H	广东省中医院大学城分院	508	18	-0.9645669
SDLW003H	新锐矿业集团中心医院	54	2	-0.9629630
HNPD005H	中国人民解放军第一五二医院	187	7	-0.9625668
SXYC002H	永济市人民医院	87	4	-0.9540230
JL00383N	长春市宽城区医院	128	6	-0.9531250
GDGZ940H	广东省中医院天河分门诊部	102	5	-0.9509804
GSDX001H	定西市第一人民医院	133	7	-0.9473684
LNSY051H	沈阳市铁西区中心医院	84	5	-0.9404762



- **Step 1:** List all the call # and the decrease rate of the matched hospitals from 2015 to 2016
- **Step 2:** Hospitals are sorted by those with the biggest decrease in activity over the year
- **Step 3:** The decrease rate of call # per hospital in 2016 greater than a certain percentage are selected
- **Step 4:** List the total sales(units) of the hospitals above
- **Step 5:** Growth of the hospitals above is Carryover as B/A

Brand	Sales of the selected hospitals		Carryover
	2015	2016	
XXX	A	B	B/A

“Hospital Ranking “ approach targets low performing hospital to test out the break point of the growth, as the carry-over rate



- **Step 1:** List all the growth of the matched hospitals from 2016 to 2015 , rank the 2016 growth of the hospitals decreasingly. Growth = the sales in Year 2016 / the sales in Year 2015 (Use the sales revenue or volume of all the matched hospitals)
- **Step 2:** Find out the break point of the curve; typical is within the range of last 30-20 percentile, since last 10% hospital are normally outliers
- **Step 3:** The growth of the break point = Carryover

Classify the product along the 4 dimensions based on historical observation globally in terms of the range of the carryover

Growth	Acute											
	High Competition				Moderate Competition				Low Competition			
	New Launch	Growing	Mature	Declining	New Launch	Growing	Mature	Declining	New Launch	Growing	Mature	Declining
-20-0	30%-40%	65%-75%	60%-70%	55%-65%	40%-50%	80%-90%	75%-80%	60%-70%	45%-55%	85%-95%	80%-85%	65%-75%
0-20	30%-40%	65%-75%	60%-70%	55%-65%	40%-50%	90%-95%	85%-90%	60%-70%	45%-55%	95%-100%	90%-95%	65%-75%
20-40	35%-45%	70%-75%	65%-70%	60%-70%	45%-55%	95%-100%	90%-95%	65%-75%	50%-60%	95%-100%	90%-95%	70%-80%
40-60	35%-45%	70%-75%	65%-70%	60%-70%	45%-55%	100%-105%	95%-100%	70%-80%	50%-60%	105%-110%	100%-105%	75%-85%
60-80	50%-60%	75%-80%	70%-75%	65%-75%	55%-65%	105%-110%	100%-105%	75%-85%	60%-70%	110%-120%	105%-110%	80%-90%
80-100	60%-70%	75%-80%	70%-75%	65%-75%	65%-75%	110%-120%	105%-110%	85%-95%	70%-80%	120%-130%	110%-115%	90%-100%

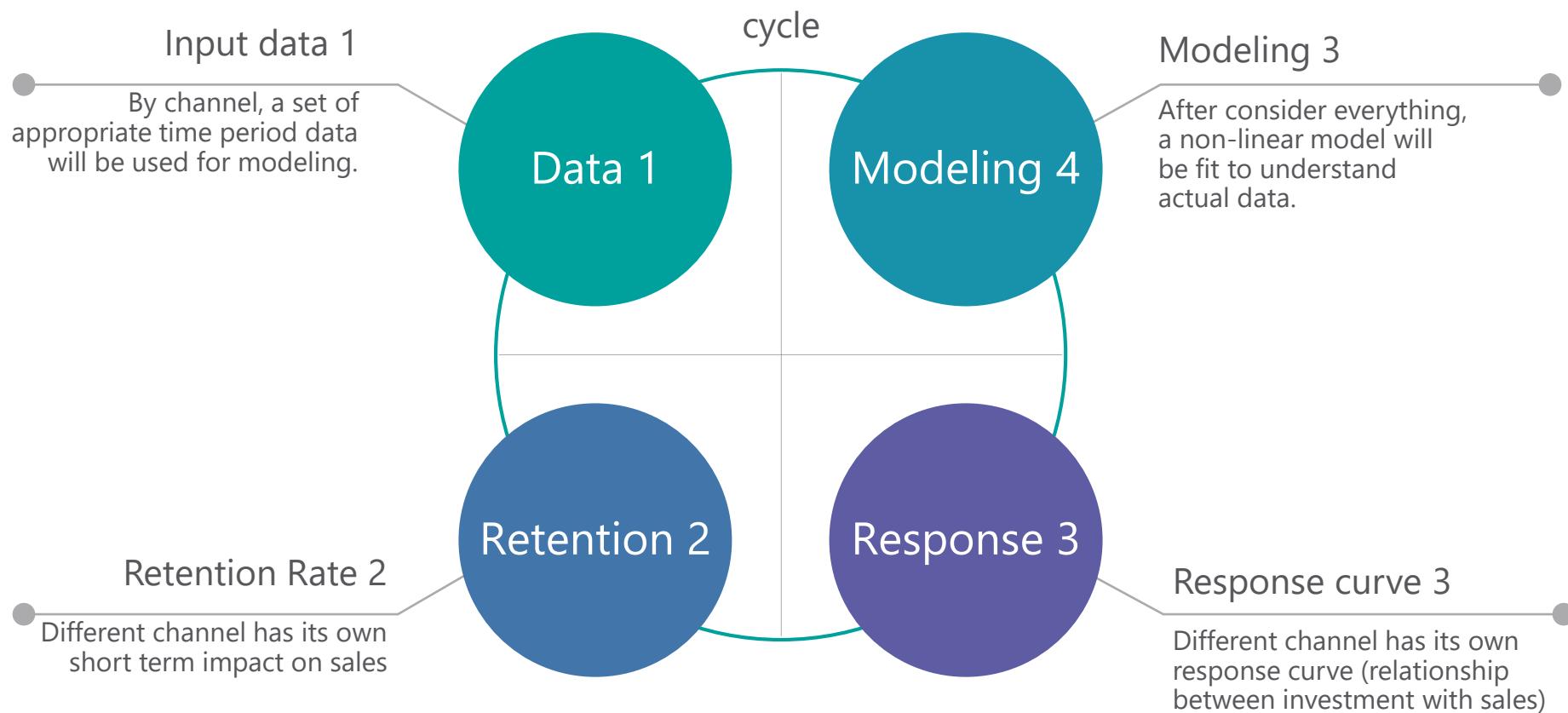
Growth	Chronic											
	High Competition				Moderate Competition				Low Competition			
	New Launch	Growing	Mature	Declining	New Launch	Growing	Mature	Declining	New Launch	Growing	Mature	Declining
-20-0	35%-45%	70%-80%	65%-75%	60%-70%	45%-55%	80%-90%	75%-85%	65%-75%	50%-60%	90%-100%	85%-90%	70%-80%
0-20	35%-45%	80%-85%	75%-80%	60%-70%	45%-55%	90%-100%	85%-95%	65%-75%	50%-60%	100%-105%	95%-100%	70%-80%
20-40	40%-50%	85%-90%	80%-85%	65%-75%	50%-60%	100%-105%	95%-100%	65%-75%	55%-65%	100%-105%	95%-100%	75%-85%
40-60	40%-50%	90%-95%	85%-90%	65%-75%	50%-60%	105%-115%	100%-110%	70%-80%	55%-60%	110%-115%	105%-110%	75%-85%
60-80	55%-65%	95%-105%	90%-100%	70%-80%	60%-70%	115%-125%	110%-120%	75%-85%	65%-75%	115%-125%	110%-115%	85%-95%
80-100	60%-70%	105%-115%	100%-110%	80%-85%	65%-75%	125%-135%	120%-130%	85%-95%	75%-85%	125%-135%	115%-120%	95%-105%

The product information and the competition status

- Indication : --
- Competition : --
- Market Growth : --
- Annual Growth of Product sales (%) : --

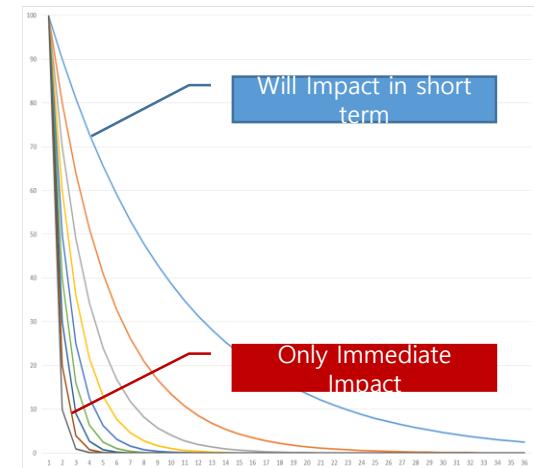
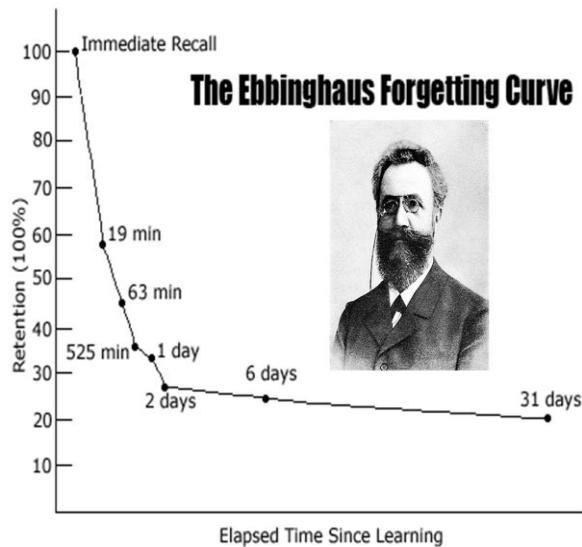


Based on modeling result, key KPIs and promotion optimization can be calculated



Key concept – Retention Rate

In order to accurately evaluate the effect of promotions on sales, we account for short term impact of past investment

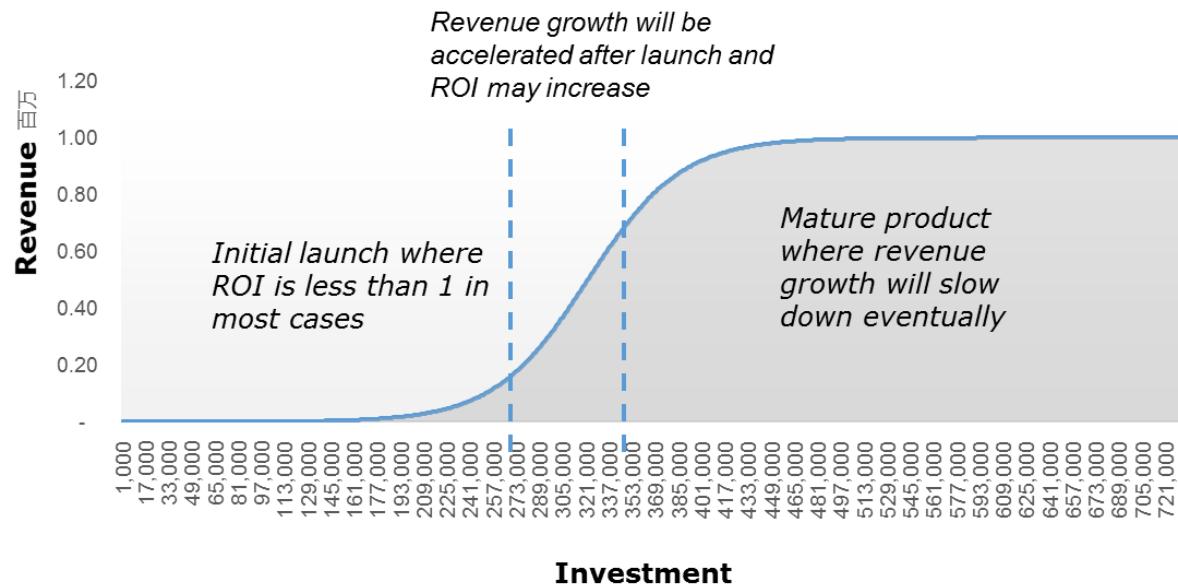


Add up the past retention impact in investment with current effective investment to measure the actual input corresponding to imitable sales

Key concept – Response Curve

Response curve is the relationship between channel investment and sales

Response curve is fundamental input for evaluation ROI & mROI and future optimization

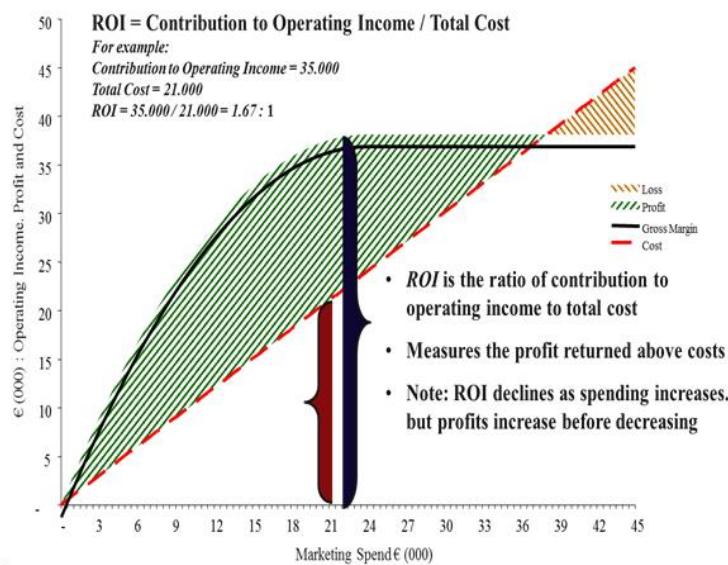


The relationship can be interpreted in variant ways (by year, by month, by hospital, by doctor, by channels)

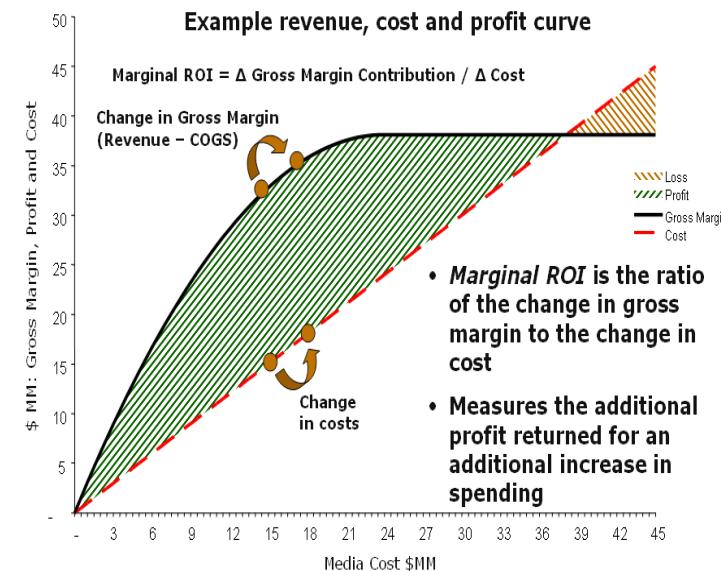
Key concept – ROI and mROI

Channel level ROI and MROI will be evaluated based on the calculated channel level response curves

Return on investment (ROI): measures the return relative to expenditure



Marginal ROI: measures the Marginal return per additional dollar of spend



mROI <1 means overspending, mROI >1 means increasing spend will increase profits, mROI =1 means profits are maximized



Key terminology for promotion effectiveness analysis

Terminology	Definition
Carryover Rate	Proportion of sales that would be achieved in the following year if all promotion is to stop
Incremental Sales	Sales contribution from different promotions
Response Curve	Response curve is the relationship between channel investment and sales
ROI	ROI measures return relative to expenditure
mROI	<p>mROI measures marginal return per additional unit of spend:</p> <ul style="list-style-type: none">• mROI <1 means overspending• mROI >1 means increasing spend will increase profits• mROI =1 means profits are maximized



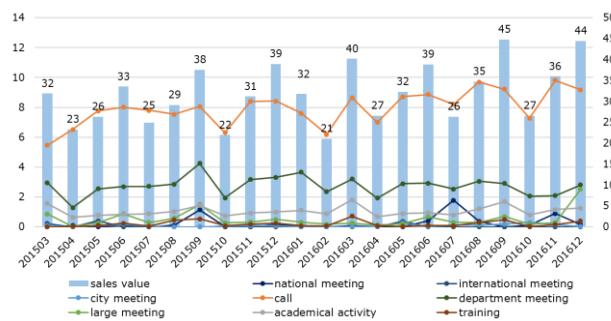
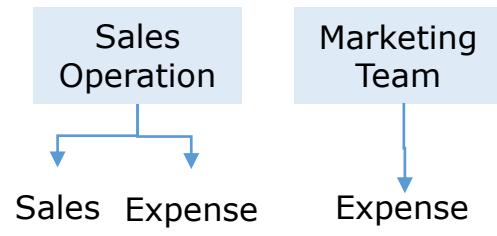
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Two key steps were performed for data preparation

Step 1

Monthly data from different sources were combined and processed



Step 2

Promotion activities were categorized before modeling



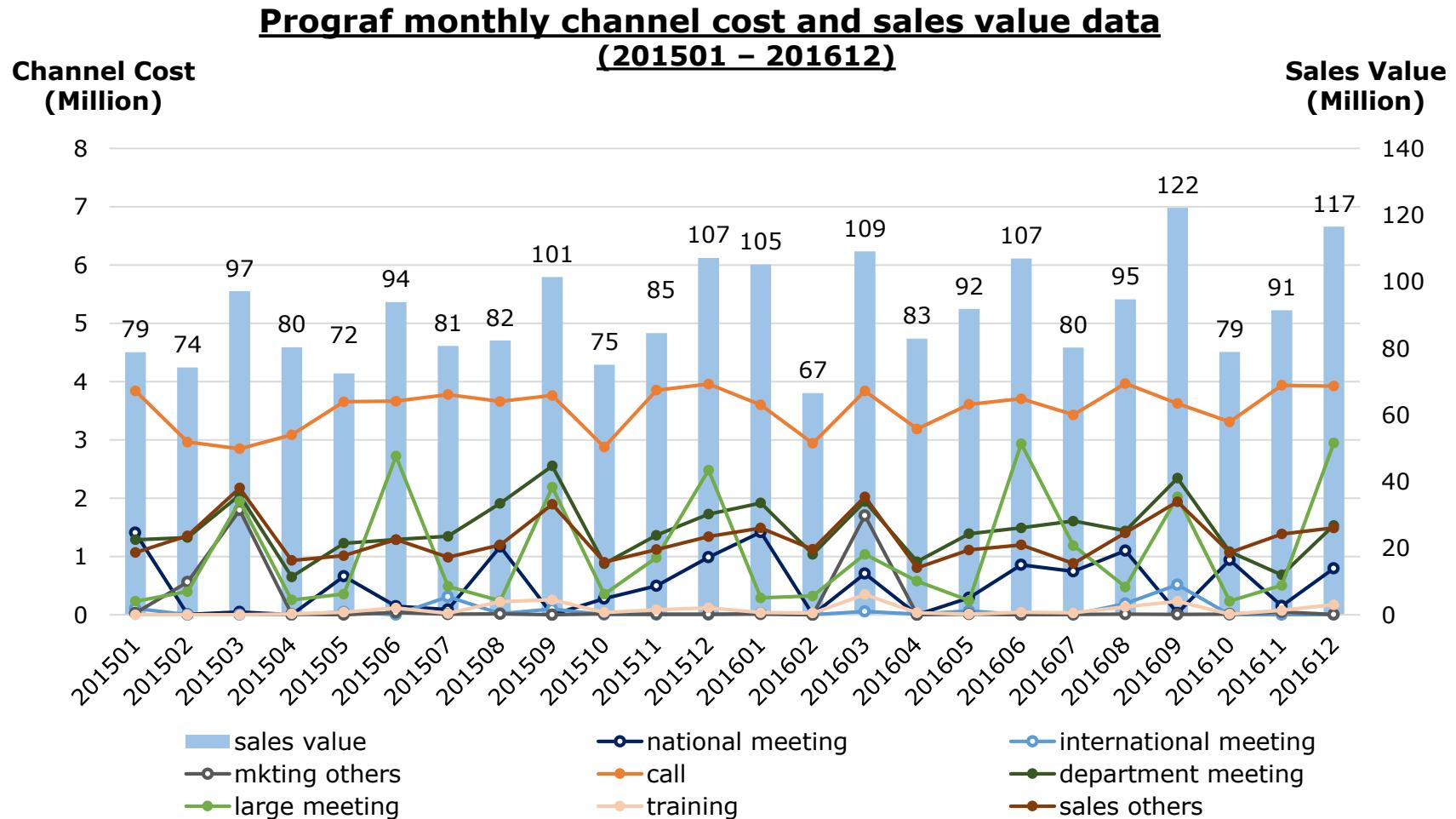
- Call
- Department meeting
- Large meeting
- Training
- Sales Others



- International meeting
- National meeting
- Marketing Others



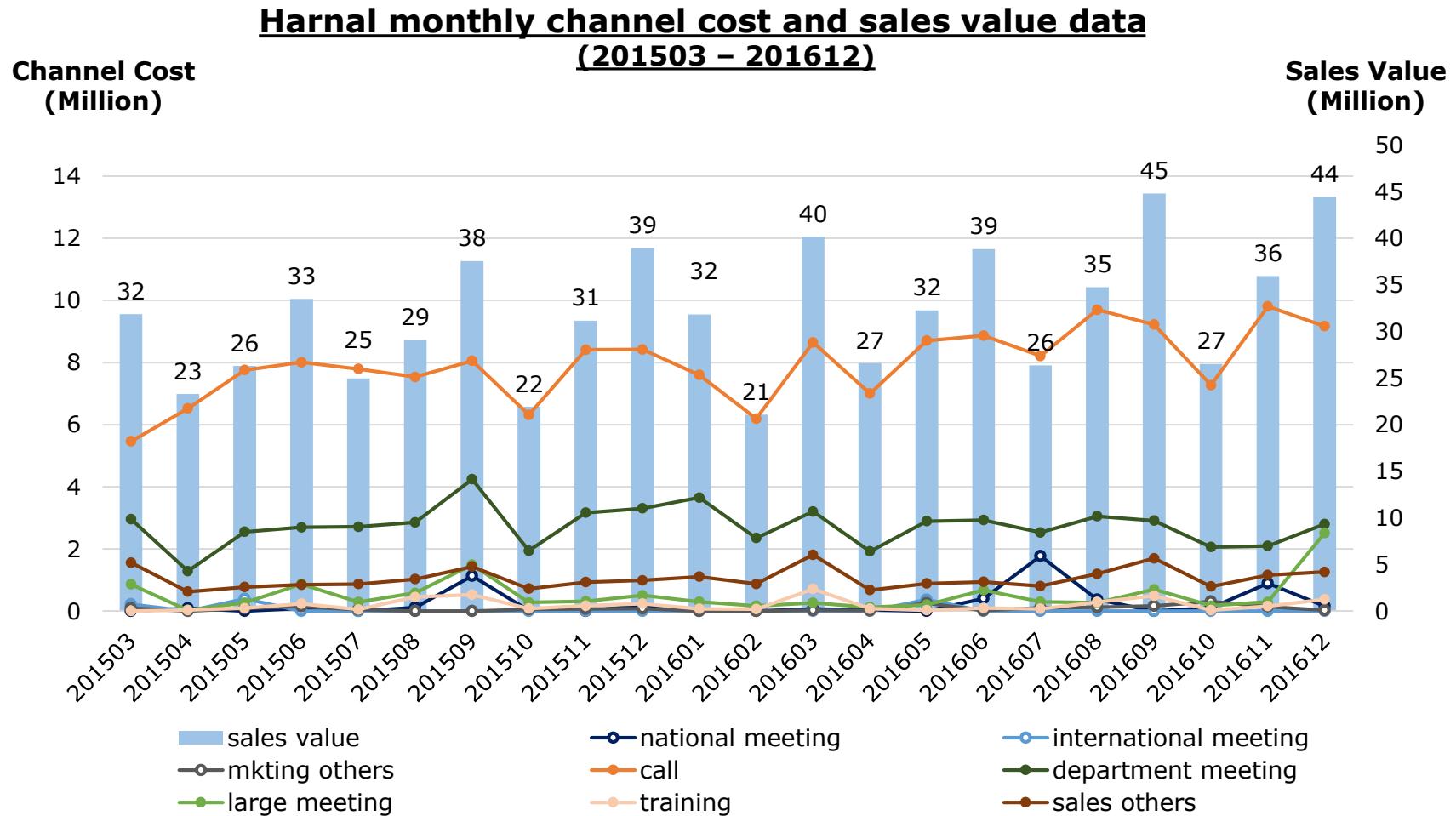
Data from different sources were processed and analyzed - Prograf



Data from all sources were processed and checked before fitting into model for KPI calculation



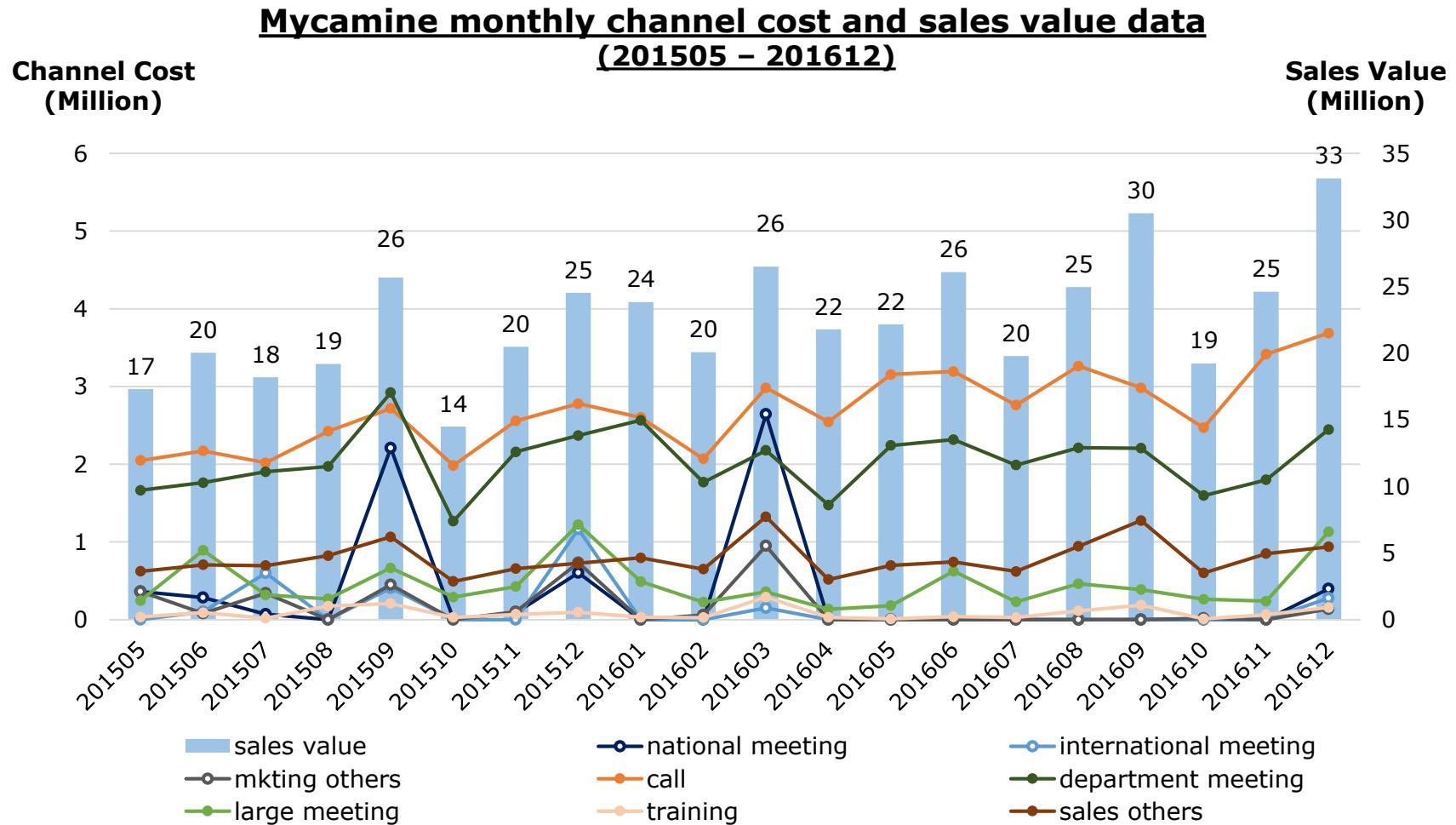
Data from different sources were processed and analyzed - Harnal



Data from all sources were processed and checked before fitting into model for KPI calculation



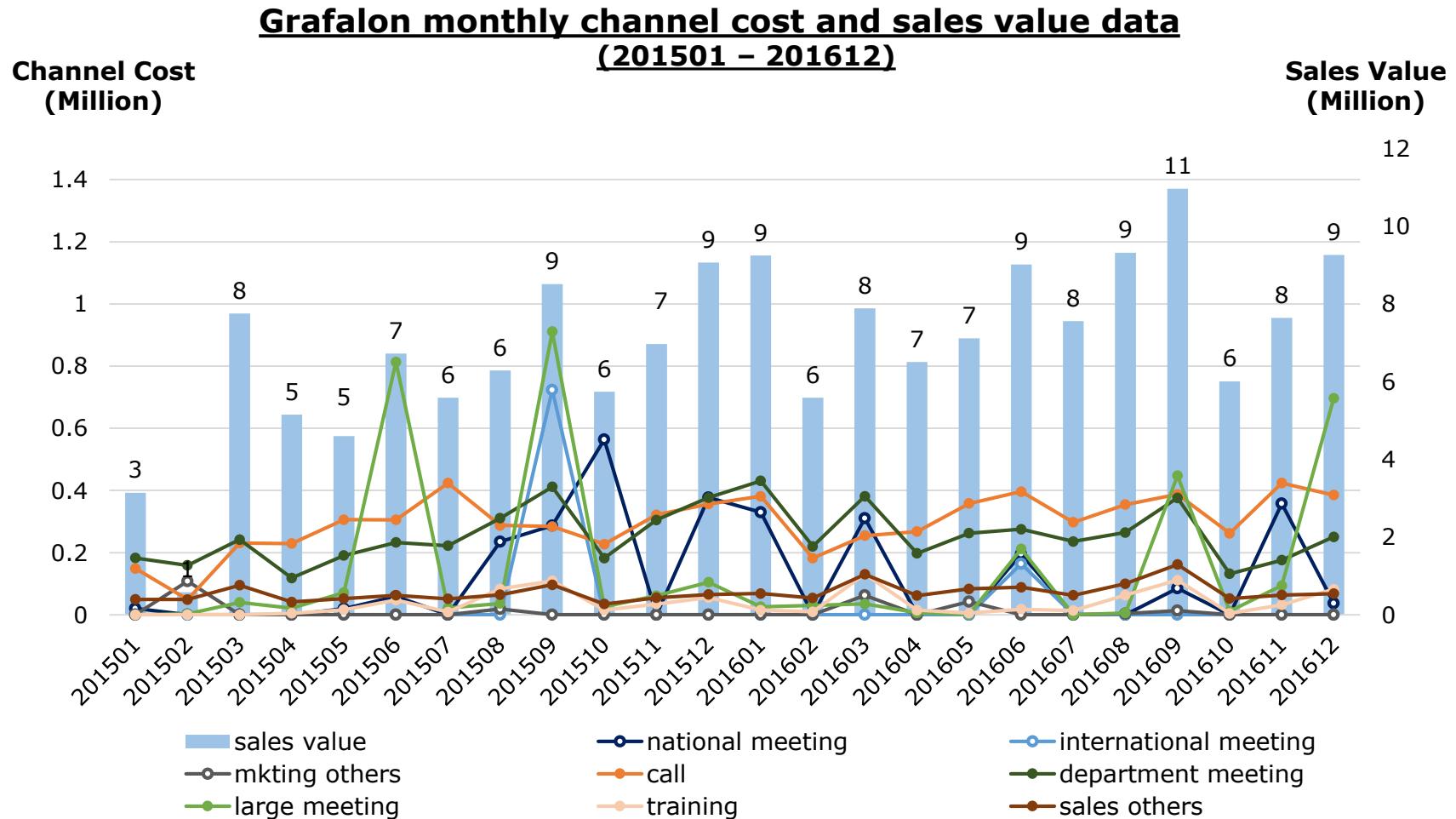
Data from different sources were processed and analyzed - Mycamine



Data from all sources were processed and checked before fitting into model for KPI calculation



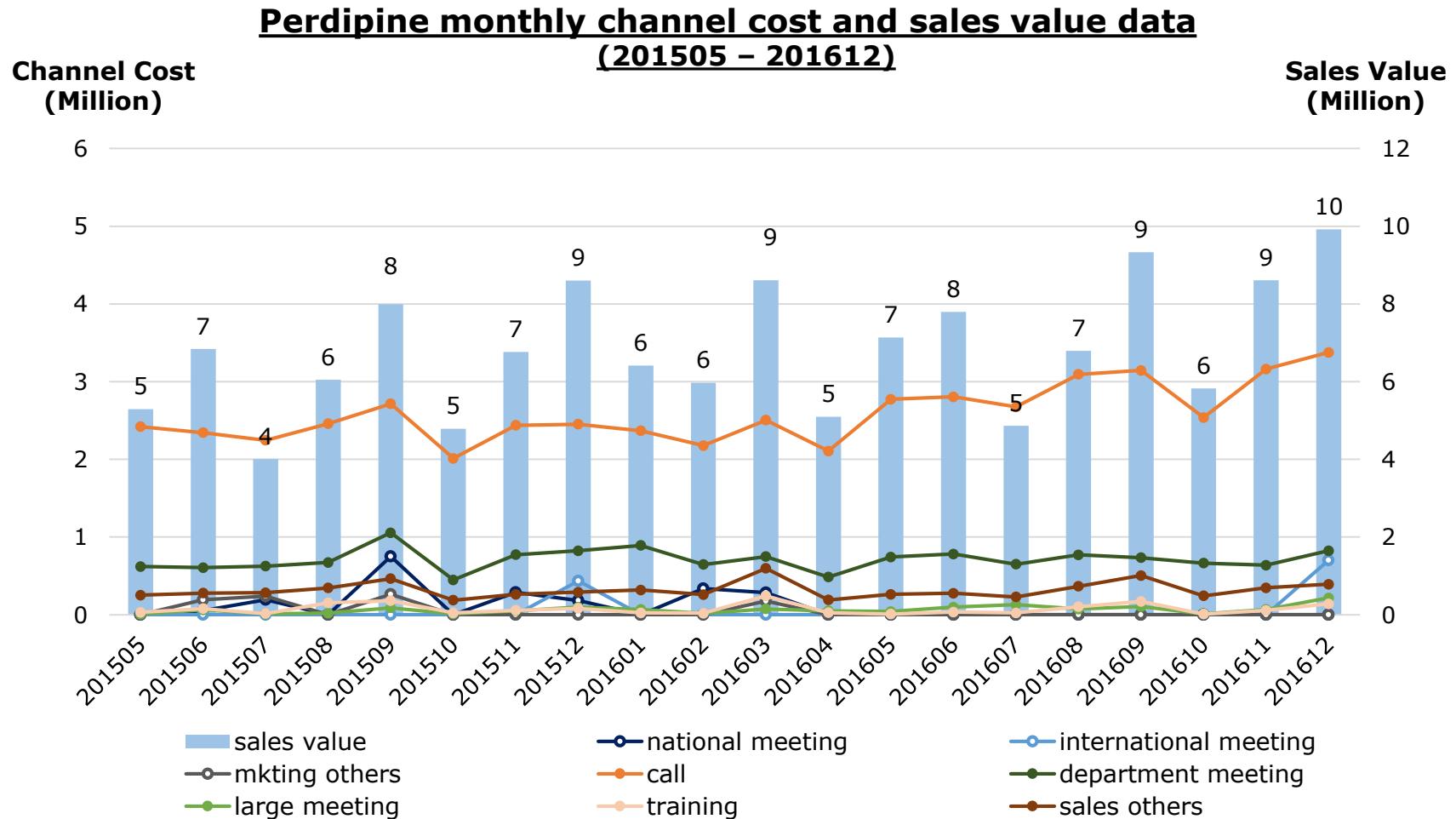
Data from different sources were processed and analyzed - Grafalon



Data from all sources were processed and checked before fitting into model for KPI calculation



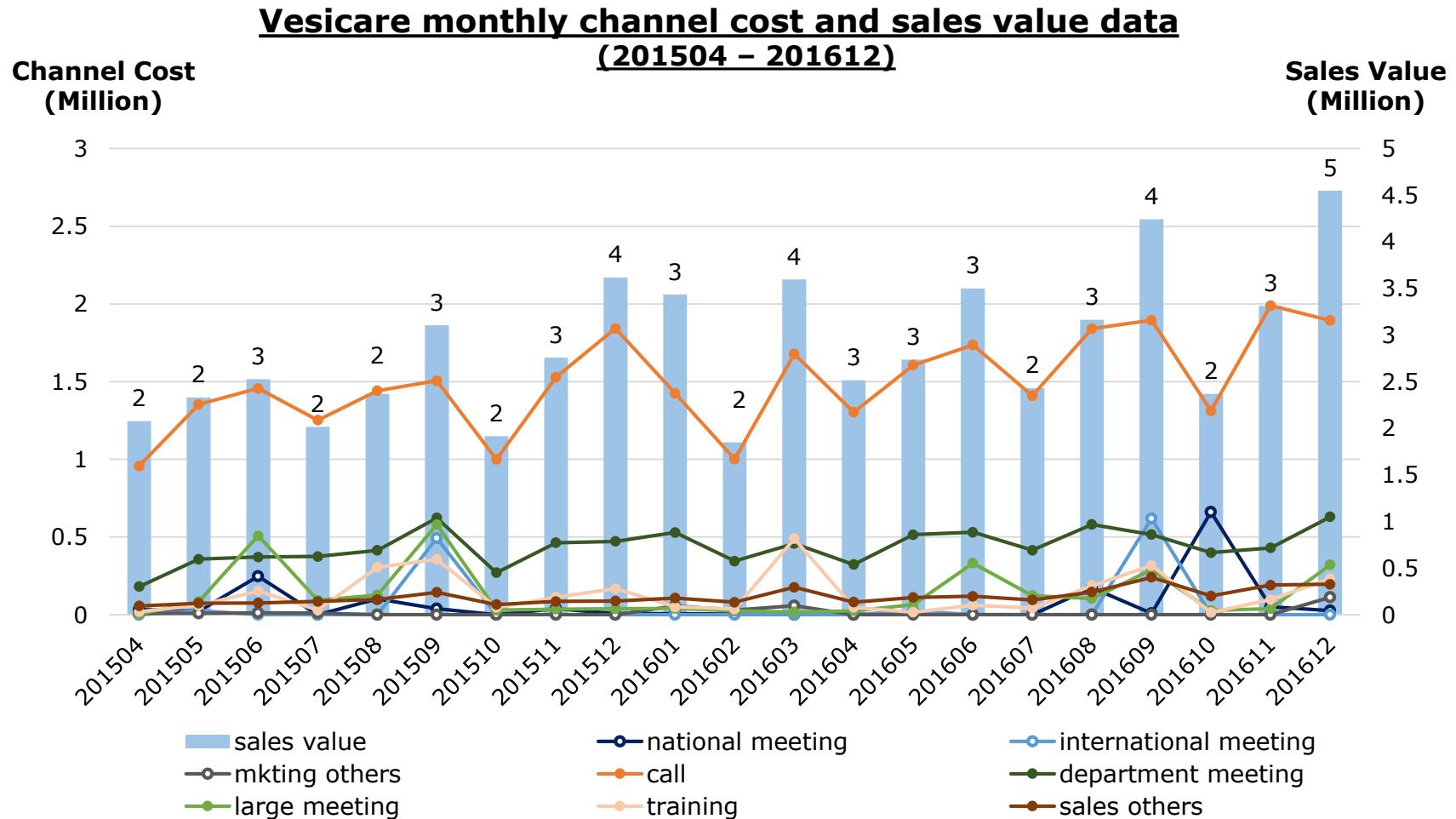
Data from different sources were processed and analyzed - Perdipine



Data from all sources were processed and checked before fitting into model for KPI calculation



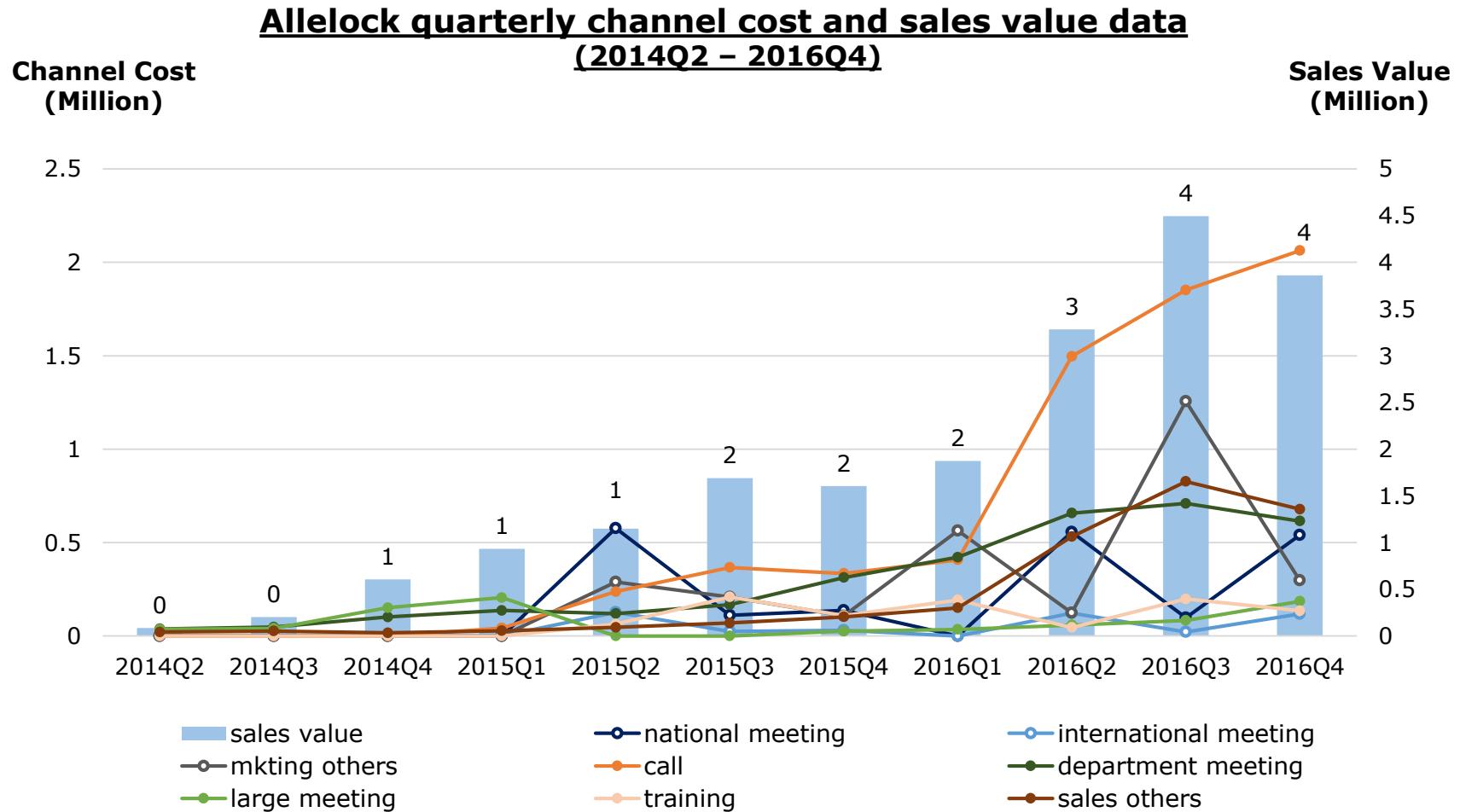
Data from different sources were processed and analyzed - Vesicare



Data from all sources were processed and checked before fitting into model for KPI calculation



Data from different sources were processed and analyzed - Allelock



Data from all sources were processed and checked before fitting into model for KPI calculation



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Model fit for all models are around 80%-90%

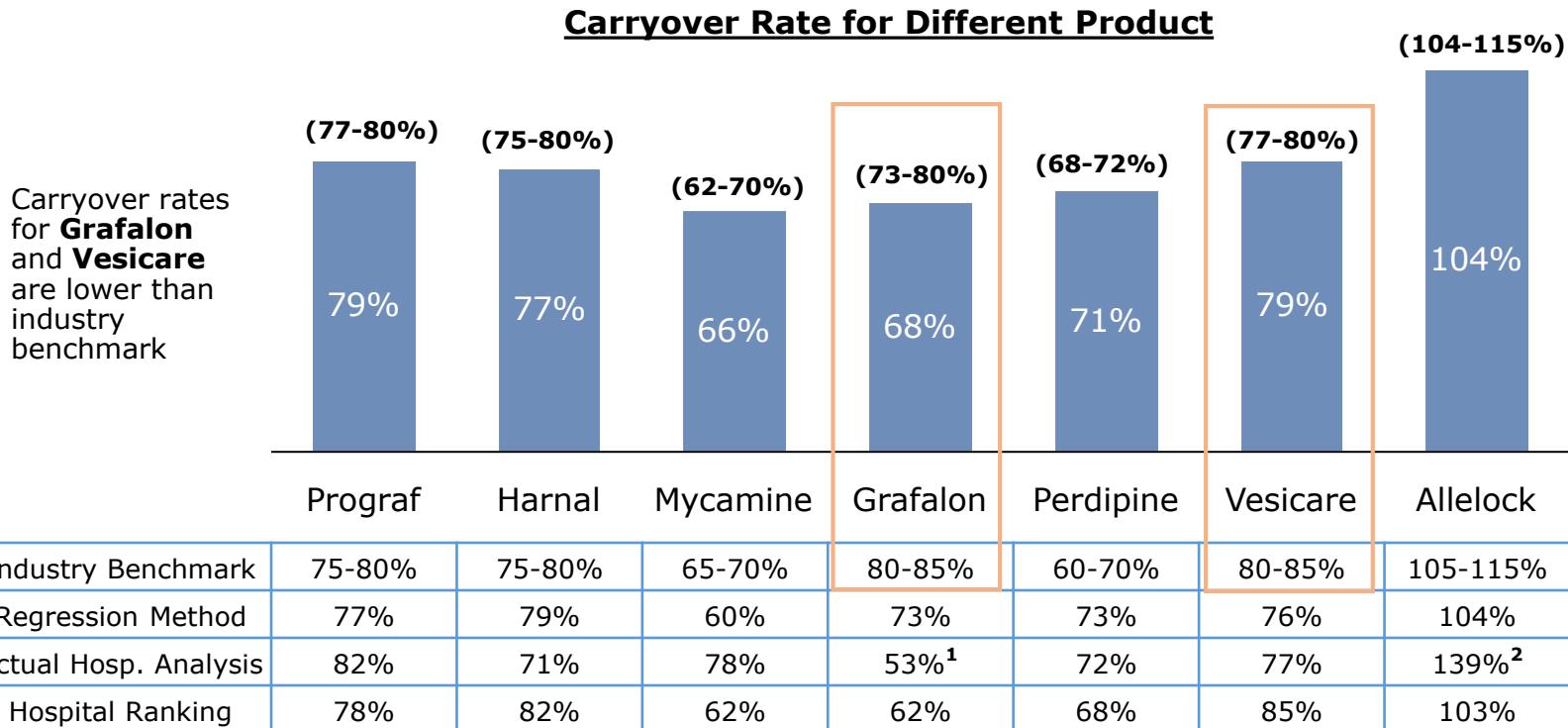
- Hundreds of models with different combination of response curve with retention rate will be fitted to check which one is best fit and best align with business objectives
- Final Modeling result is picked from top fitted model and best business application

Product	Model R square
Prograf	0.89
Harnal	0.91
Mycamine	0.90
Grafalon	0.88
Perdipine	0.81
Vesicare	0.90
Allelock	0.92

Example for Model Fit



Majority of ACN products have carryover rate inline with industry benchmark

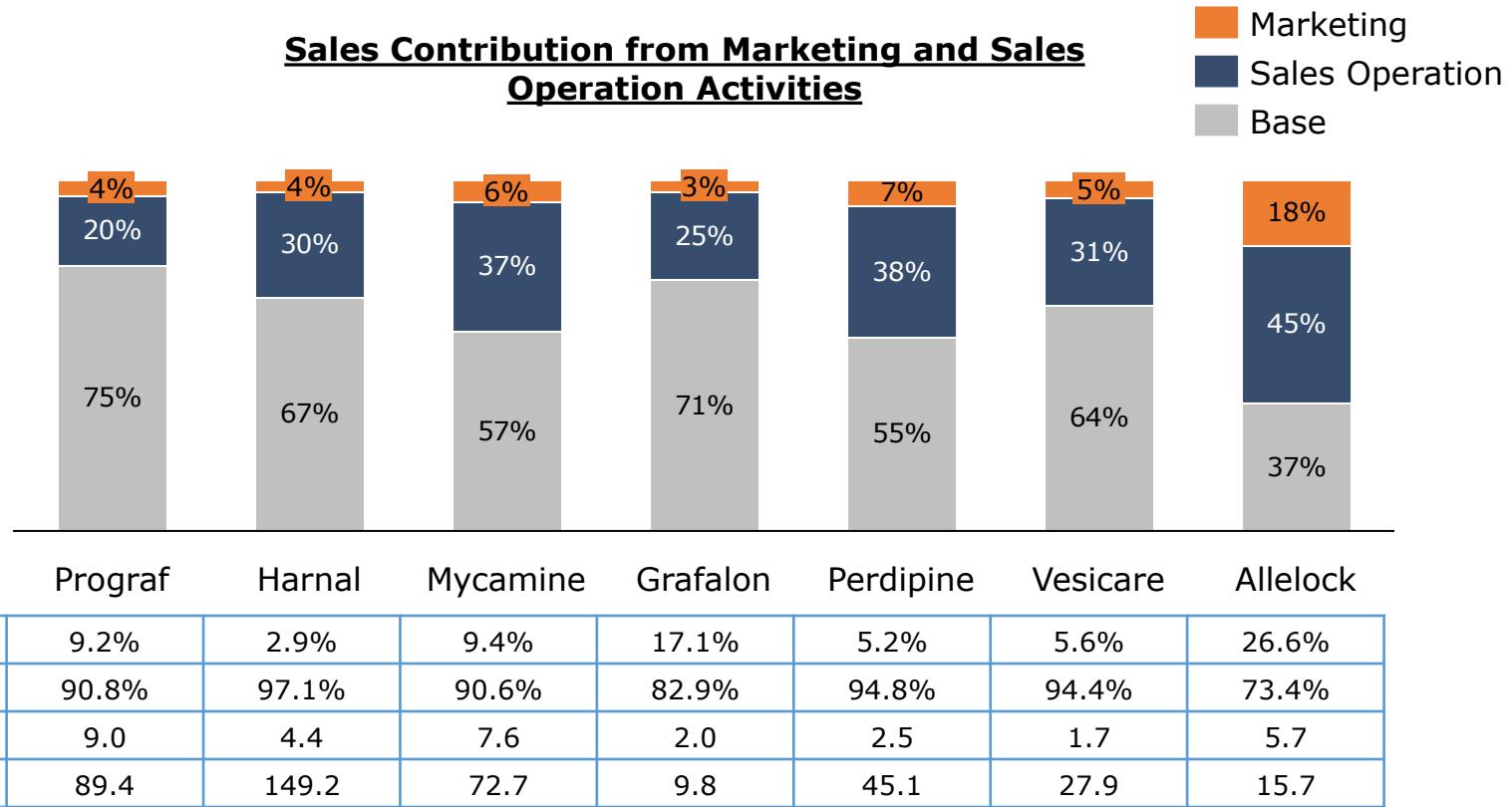


- Majority of ACN products have promotions as effective as those for similar product in the market. Grafalon is a newly acquired product and its promotion effectiveness needs improvement
- Carryover for acute disease product tend to be lower due to one-off effect for promotion of such kind. Physicians need persistent visit from sales to keep up the prescription
- Allelock is a new launch product still in growth stage and its carryover rate is over 100%

1. 5 hospitals with call activities dropped 30% in 2016 were used. This method is not included in final carryover calculation

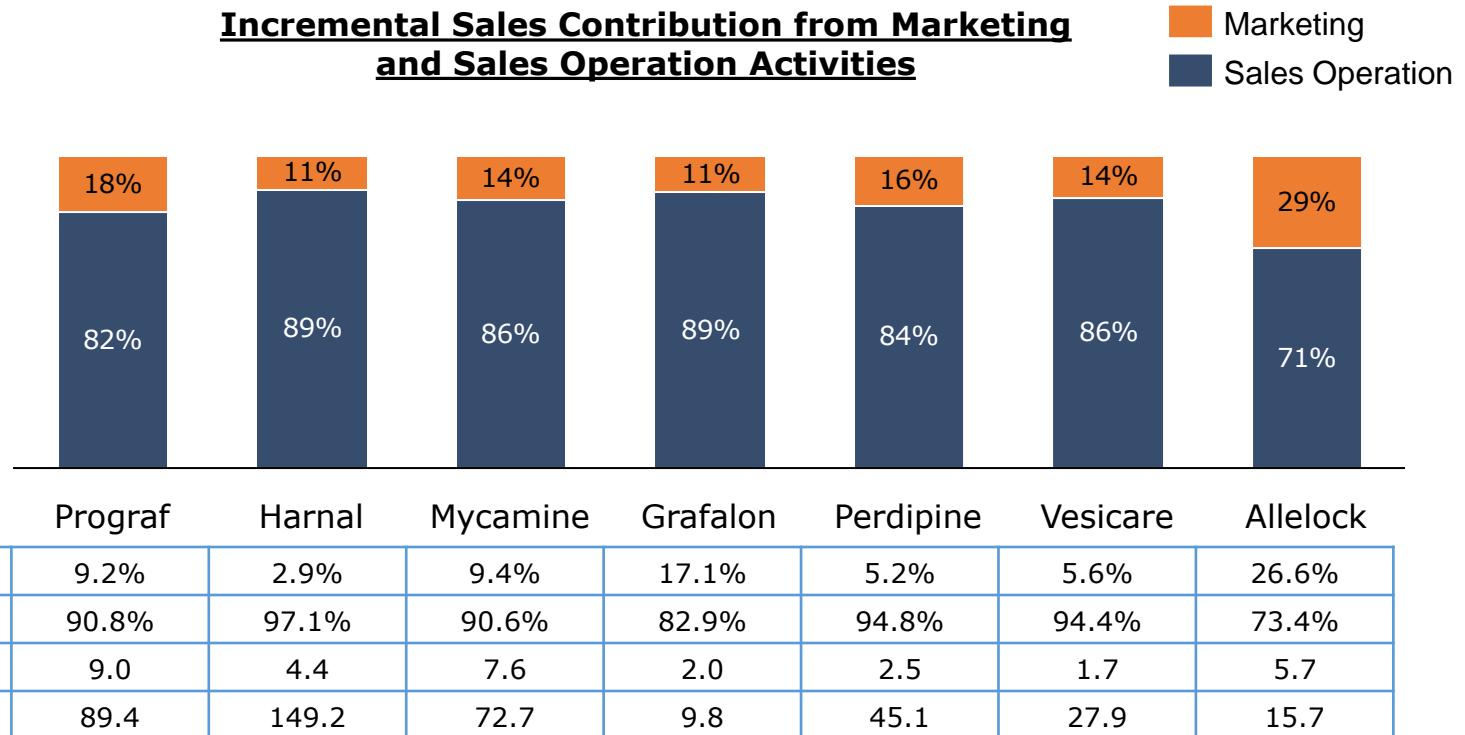
2. 5 hospitals with call activities dropped 20% in 2016 were used. This method is not included in final carryover calculation

New products have higher sales contribution from promotions than mature products



- Allelock as a new product still have majority of sales contribution from promotions
- Among mature products, those for acute disease tend to have higher sales contribution from promotions than that for chronic disease
- As cost is not considered in sales contribution, promotion channels with higher expense tend to have higher sales contribution. However, high contribution does not guarantee high ROI

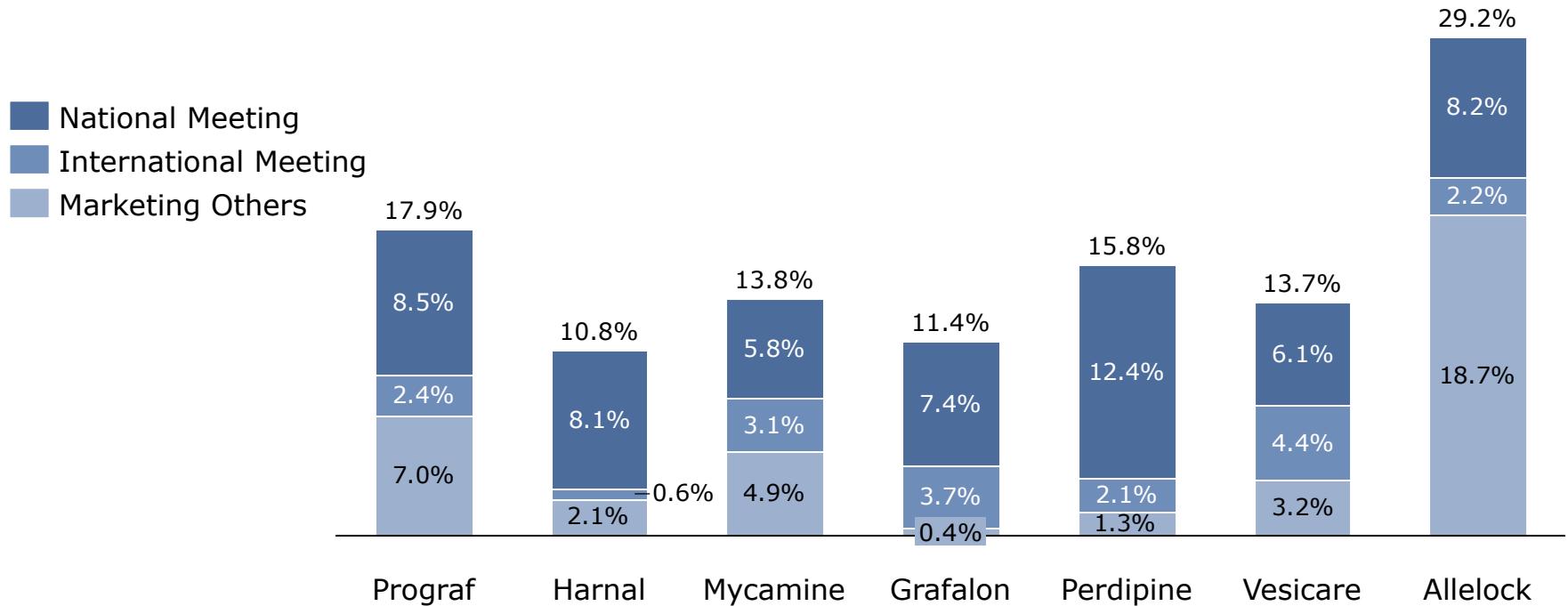
Sales contribution is higher than marketing as majority of promotion expense is on sale efforts



- Prograf has higher sales contribution from marketing than other mature products. Most of its meeting attendees are either KOL or holds high position in hospitals, which explains high quality of its marketing activities
- Harnal has the lowest marketing contribution among top products, but it's marketing cost share is only 3% which is the lowest among all as well
- New product tend to have higher marketing contribution which is a common practice in the market

In most cases, national meeting has the highest contribution among all marketing activities

Incremental Sales Contribution from Different Promotion Activities - Marketing

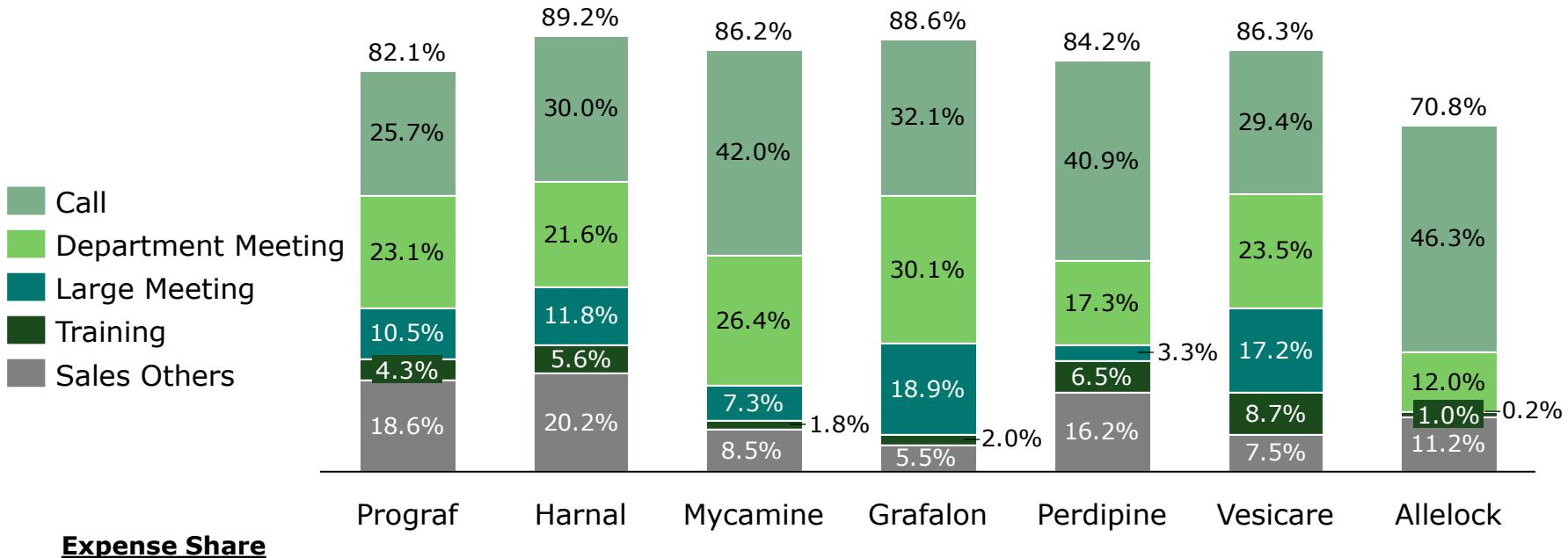


Expense Share

National Meeting	6.3%	1.9%	5.0%	12.2%	2.6%	2.8%	10.4%
International Meeting	0.7%	0.3%	2.0%	3.8%	1.4%	2.2%	2.2%
Marketing Others	2.2%	0.6%	2.4%	1.1%	1.1%	0.6%	14.1%

Call and department meeting are the two most important activities for sales operation

Incremental Sales Contribution From Different Promotion Activities - Sales Operation



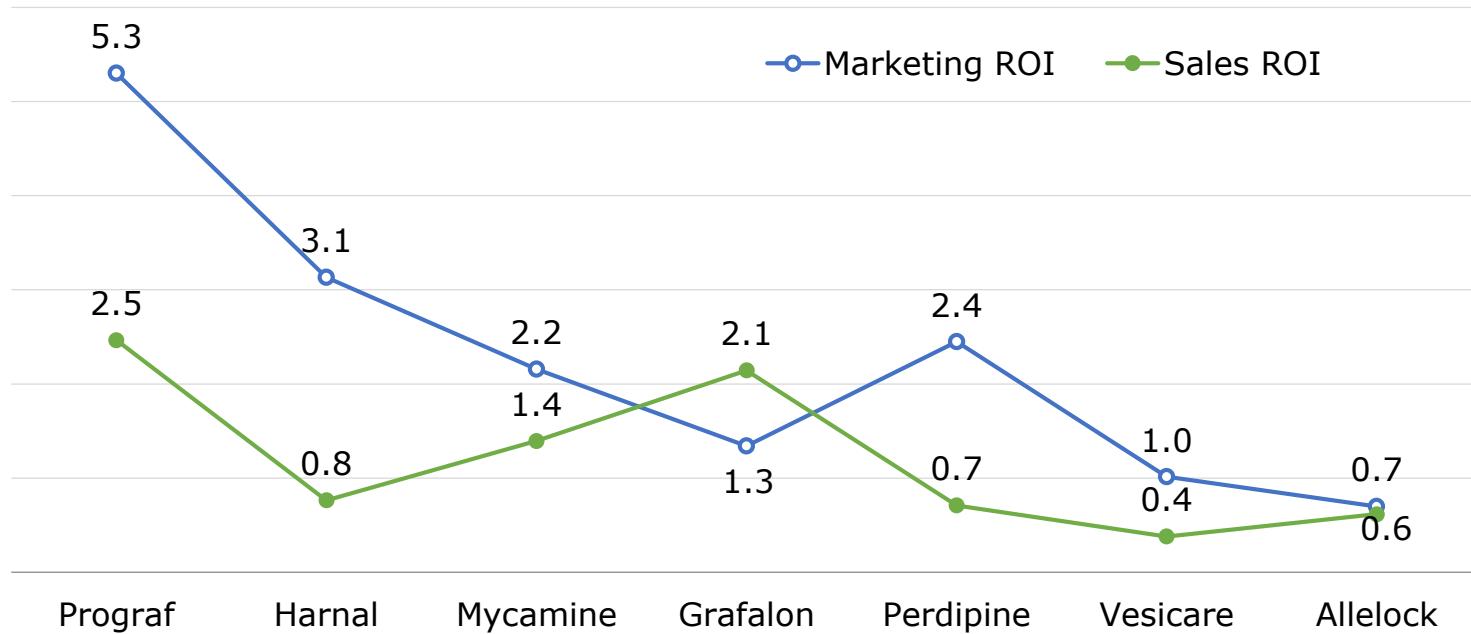
Expense Share

	Prograf	Harnal	Mycamine	Grafalon	Perdipine	Vesicare	Allelock
Call	43.2%	62.0%	40.3%	30.3%	65.4%	60.7%	34.6%
Department Meeting	17.8%	21.3%	30.5%	26.1%	17.9%	17.8%	17.0%
Large Meeting	12.9%	4.1%	6.8%	15.6%	1.7%	5.6%	4.2%
Training	1.1%	1.5%	1.3%	3.7%	1.9%	5.5%	4.9%
Sales Others	15.9%	8.1%	11.8%	7.3%	8.0%	4.7%	12.7%



Marketing ROI is higher than sales ROI in most cases

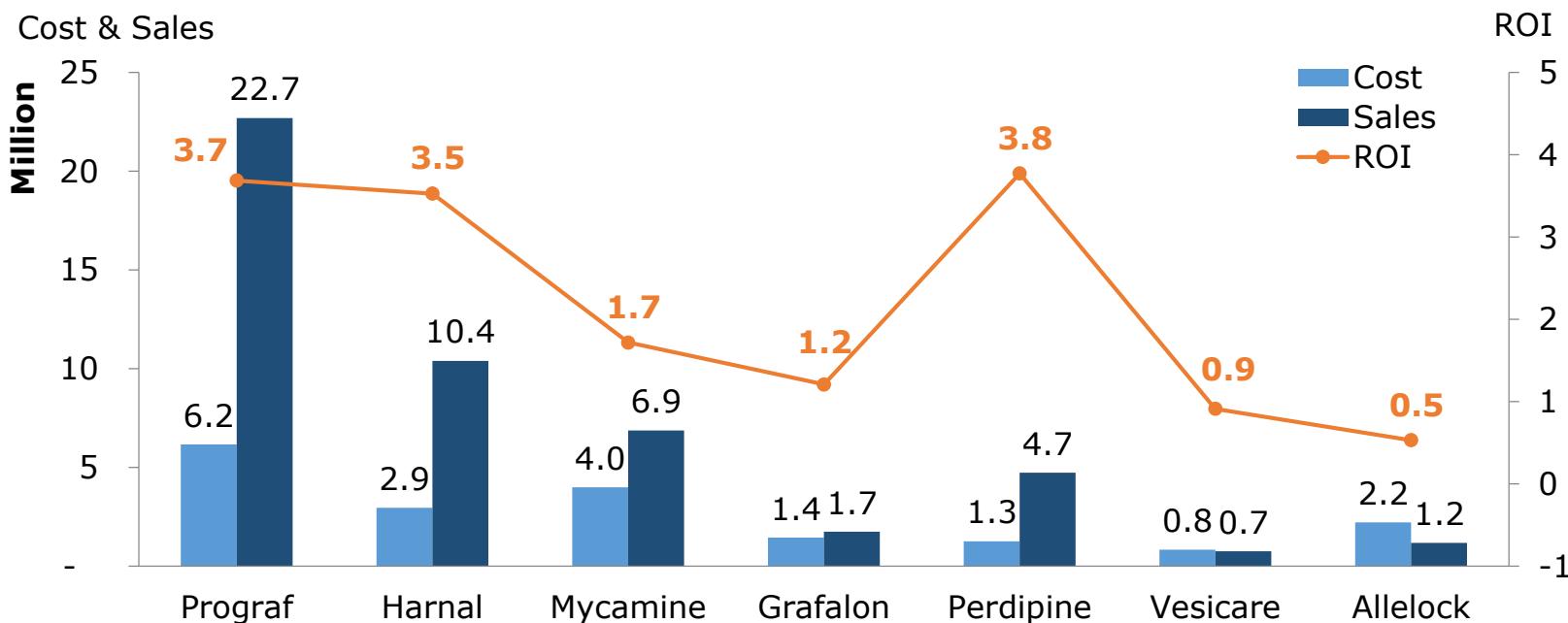
Overall ROI by marketing and sales



- Except Grafalon, overall marketing ROI is higher than overall sales ROIs in each product

Most national meeting has ROI greater than 1

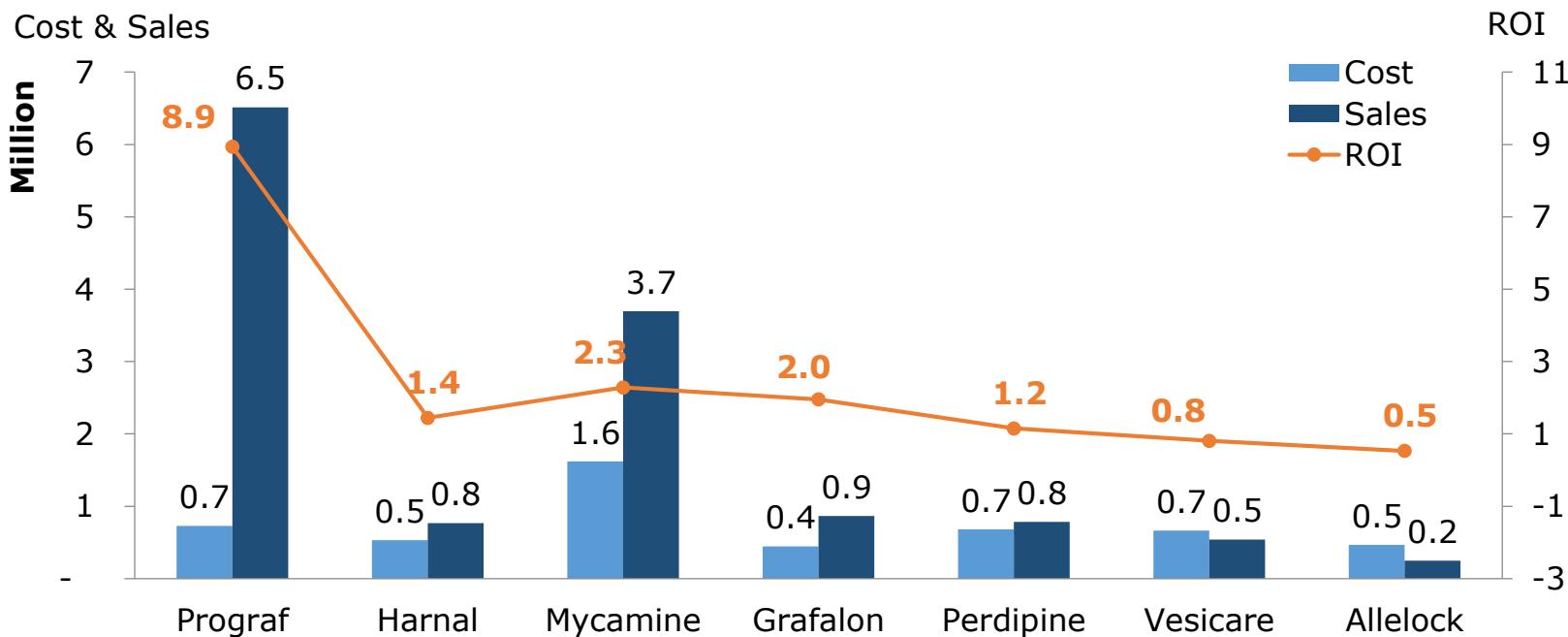
Marketing-National meeting



- National meeting attendees' high quality might be a reason for Prograft's high ROI level
- As Allelock is still in the growth stage, lots efforts are still needed to boost Allelock sales. Promotion ROIs will pick up once the initial brand building stage is over

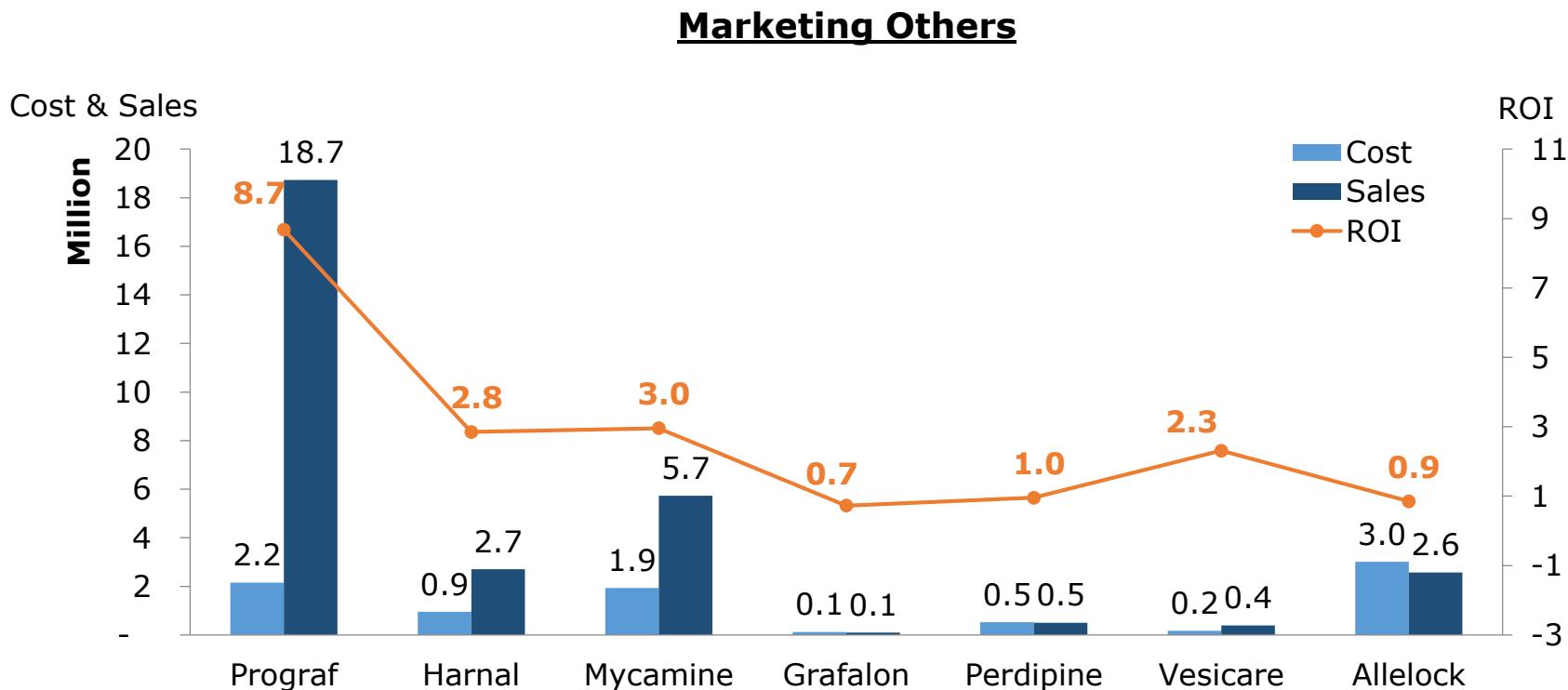
International meeting for Prograf is extremely effective

Marketing-International meeting



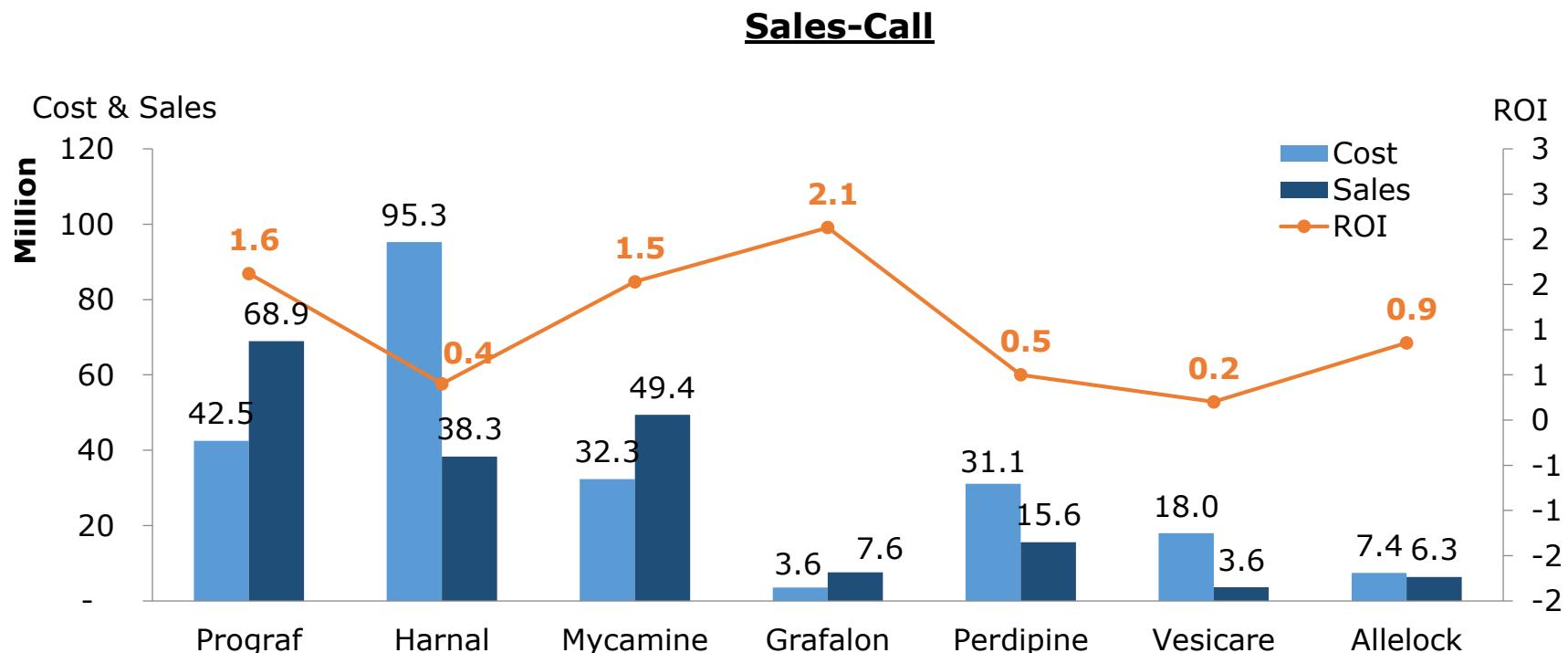
- International meeting is an effective promotion method where majority products have ROI greater than 1. It's especially effective for Prograf

Other Marketing activities are also effective



- Prograf has the highest ROI for other marketing activities

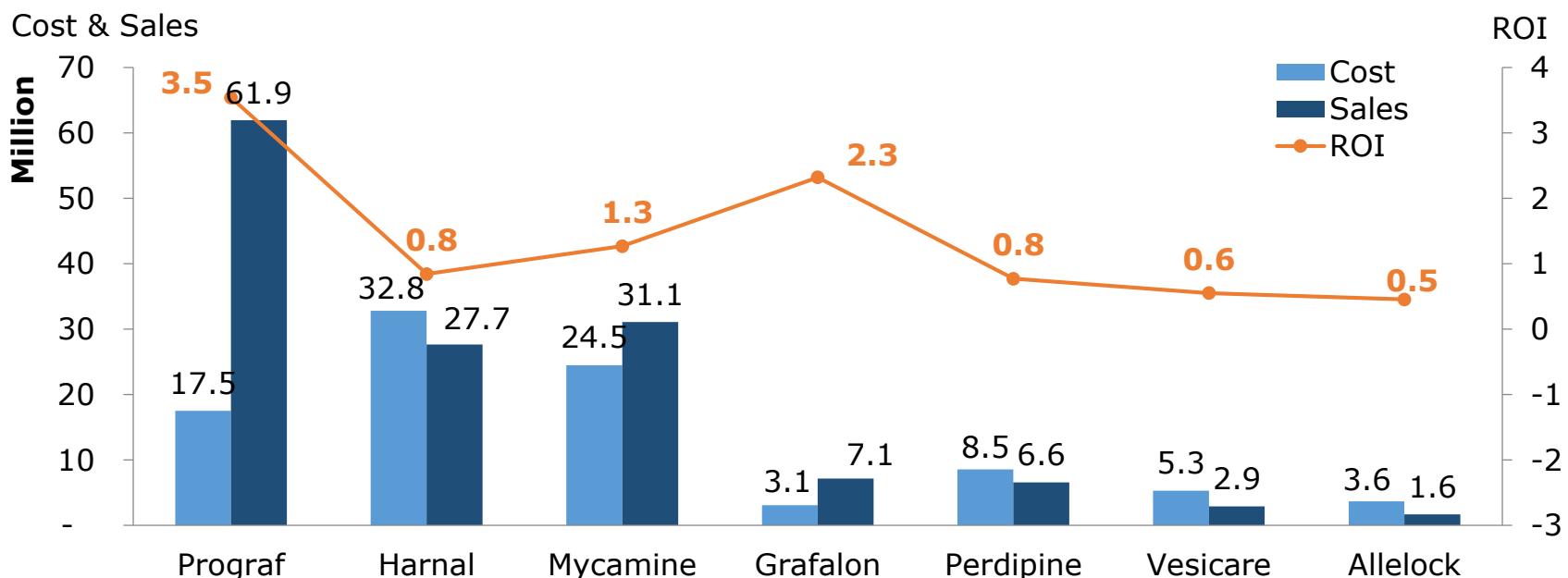
ROI for calls tend to be lower compare to other sales activities



- Calls for Harnal, Perdipine and Vesicare need to be more effective. Innovate promotion method can be utilized as an alternative to cut down cost, e.g. digital method
- Sales coverage need to be competitive where key competitors have strong field presence.

Department meeting is more effective for products like Prograf and Grafalon where departments are more concentrated

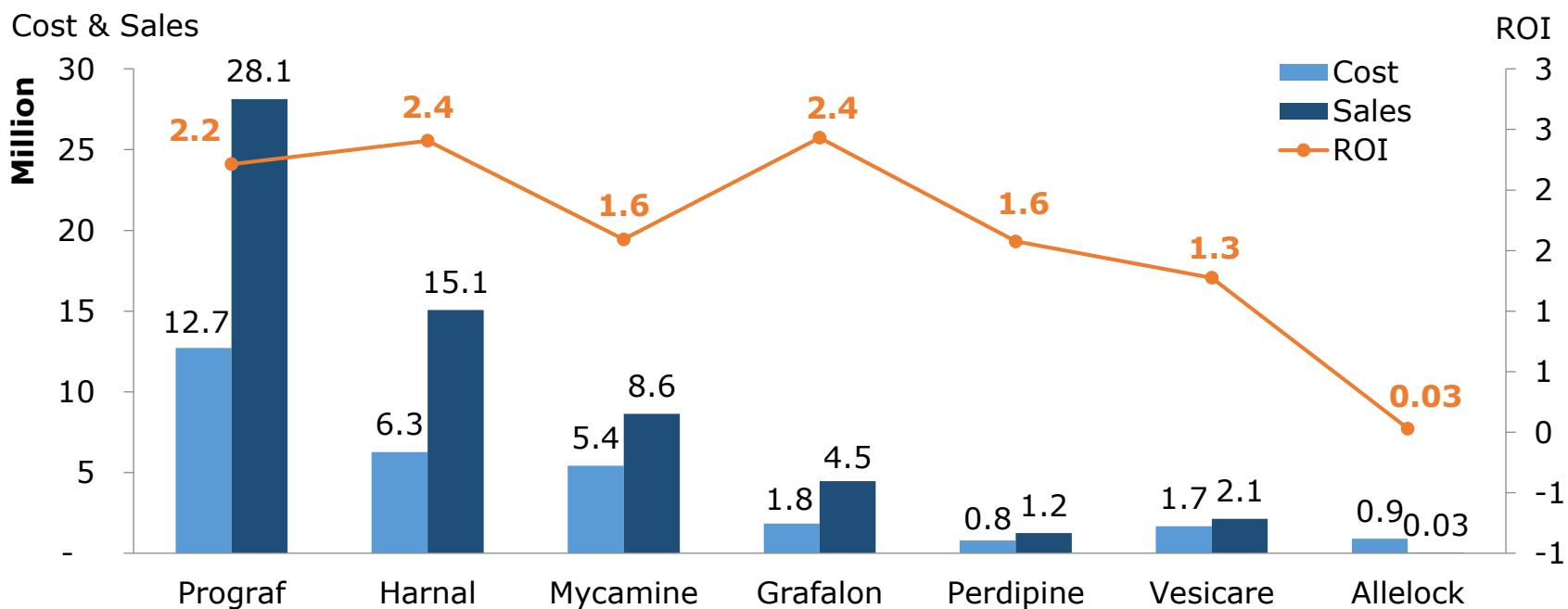
Sales-department meeting



- ROI of department meeting for products other than Prograf and Grafalon tend to be lower than 1

Large meeting is an effective way to communicate with physicians which in return drive sales

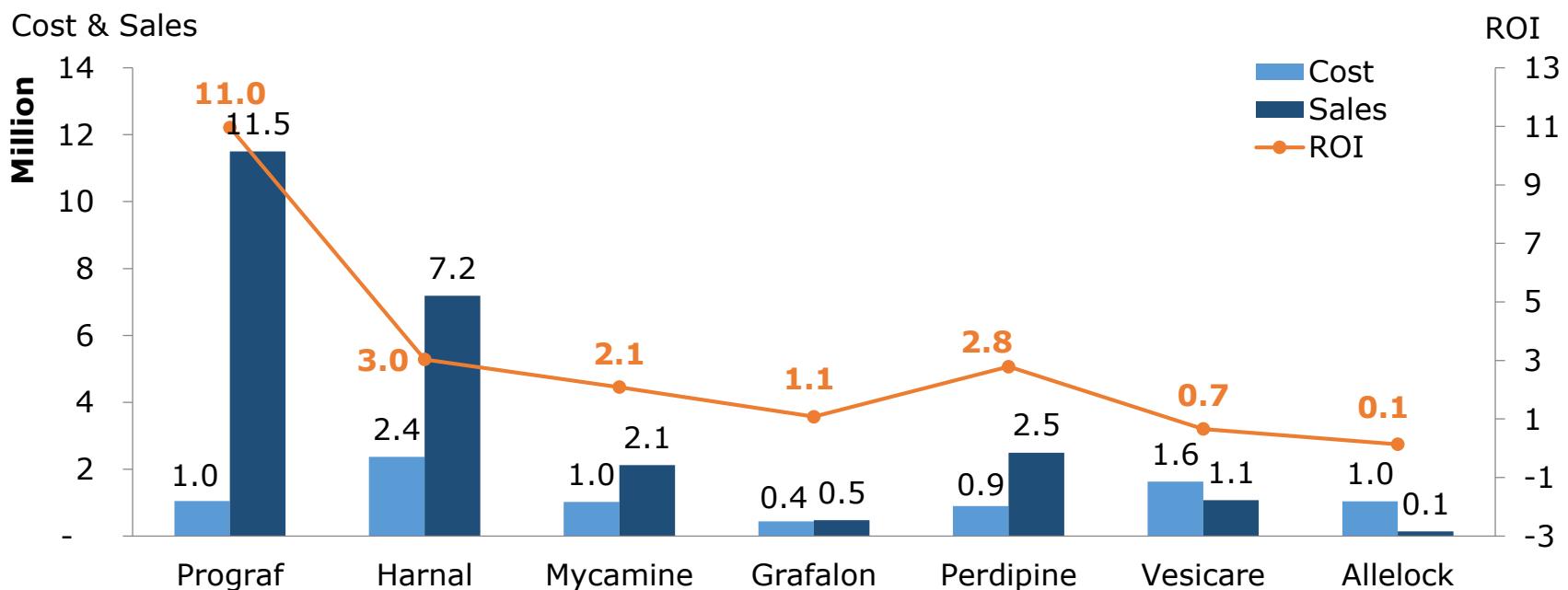
Sales-large meeting



- Large meeting is effective for majority of ACN products

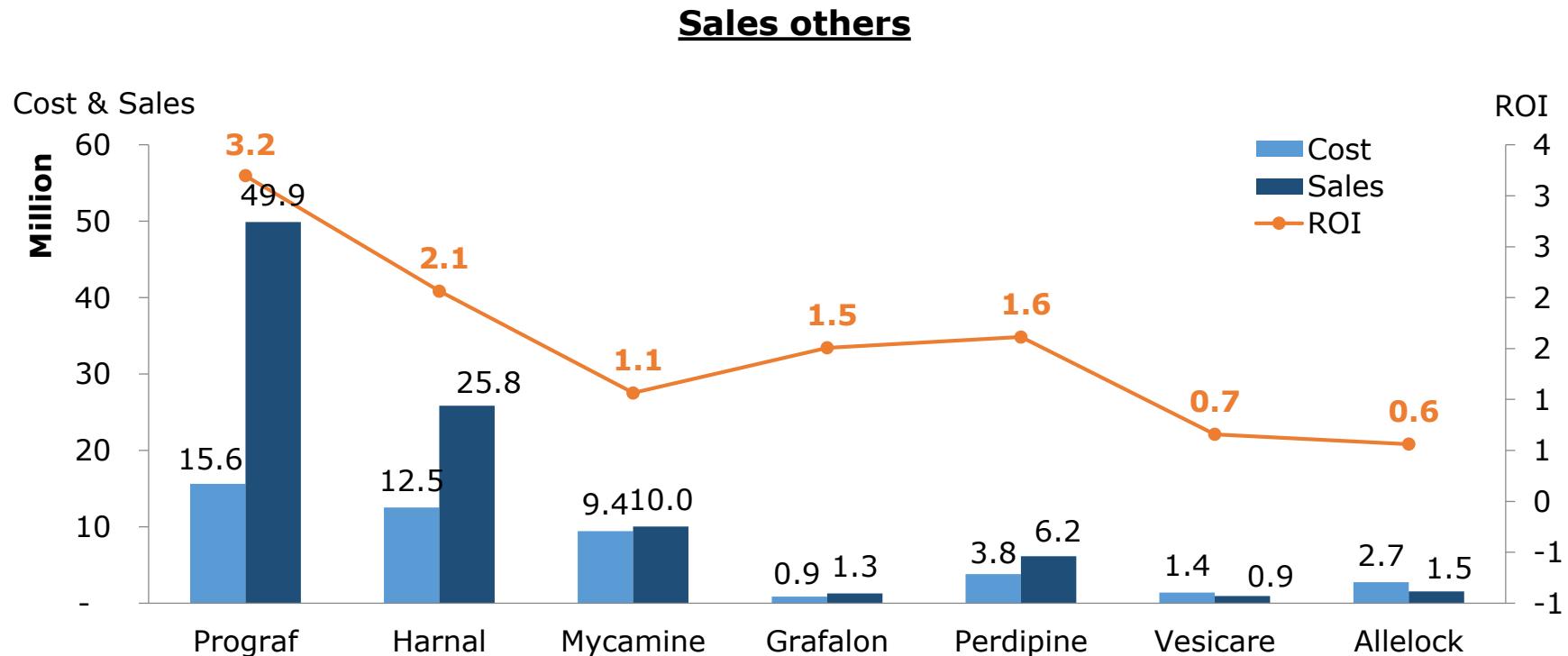
Training is extremely effective for Prograf

Sales-training



- Prograf's nature of product may require sales person to have more specialized knowledge. Sales team training is an very effective way to boost Prograf sales

Majority of other Sales activity has ROI greater than 1



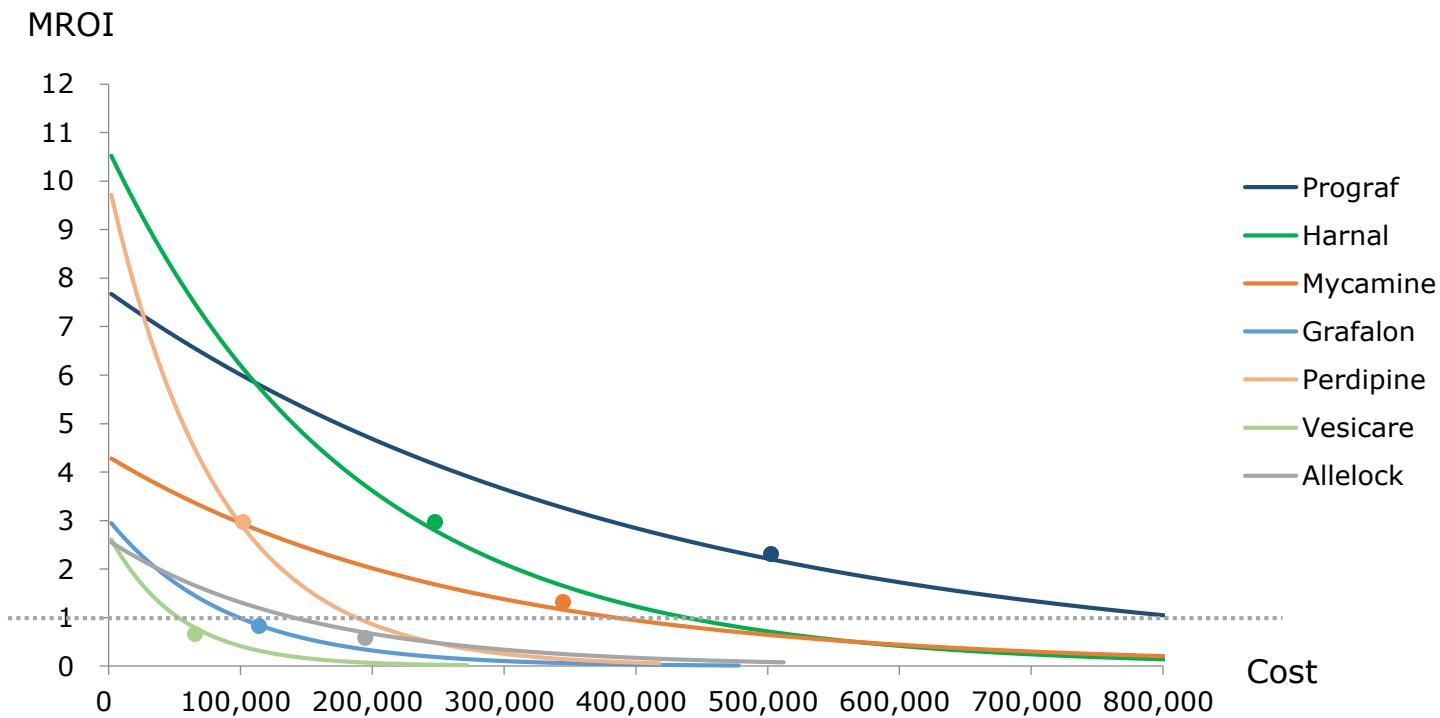
- Most products performs well in sales activities other than call
- Vesicare only has ROI for large meeting greater than 1. Promotion activities for Vesicare is the least effective among all

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Most products still have room to increase spending on national meeting to reach optimization

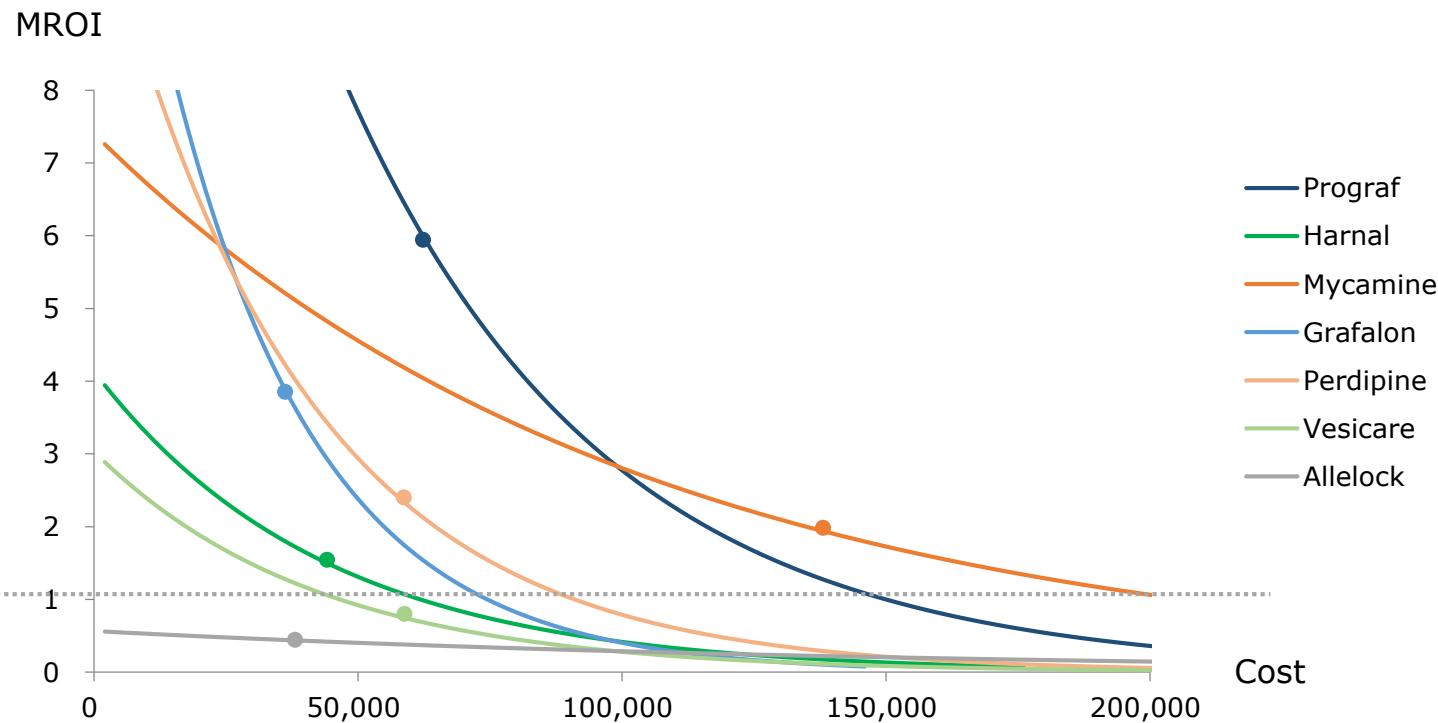
MROI for National Meeting (Monthly mean)



	Prograf	Harnal	Mycamine	Grafalon	Perdipine	Vesicare	Allelock
Current monthly cost	513,196	245,684	333,082	119,875	104,544	68,497	185,095
Current MROI	2.1	2.8	1.2	0.8	2.7	0.7	0.3

Most products need to increase spending on international meeting to increase profits

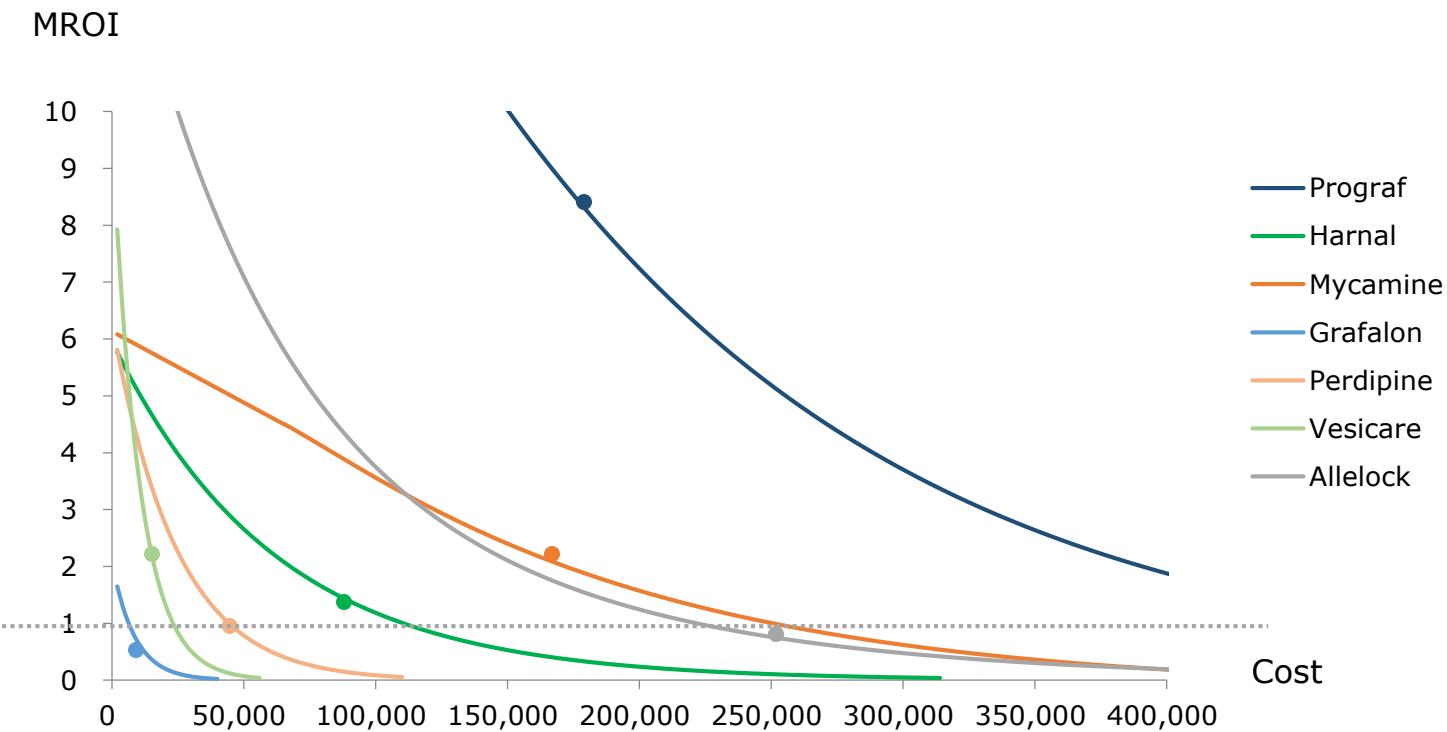
MROI for International Meeting (Monthly mean)



	Prograf	Harnal	Mycamine	Grafalon	Perdipine	Vesicare	Allelock
Current monthly cost	60,743	44,320	134,866	36,974	56,792	55,385	38,762
Current MROI	6.1	1.5	2.0	3.6	2.4	0.8	0.3

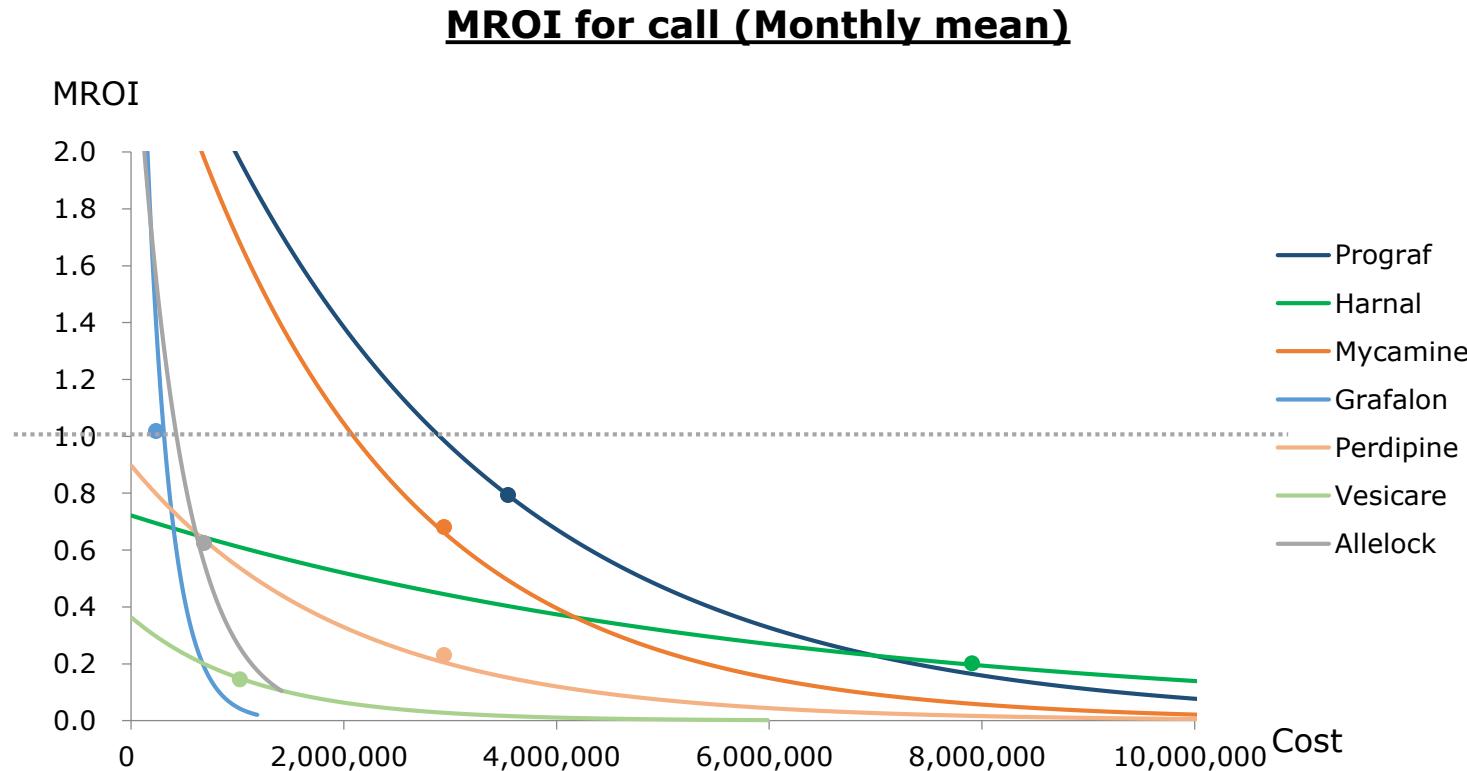
Expense for other marketing activities in most products could be increased

MROI for marketing others (Monthly mean)



	Prograf	Harnal	Mycamine	Grafalon	Perdipine	Vesicare	Allelock
Current monthly cost	179,828	78,974	161,424	10,355	43,622	14,237	251,376
Current MROI	8.2	1.6	2.3	0.6	1.0	2.2	0.8

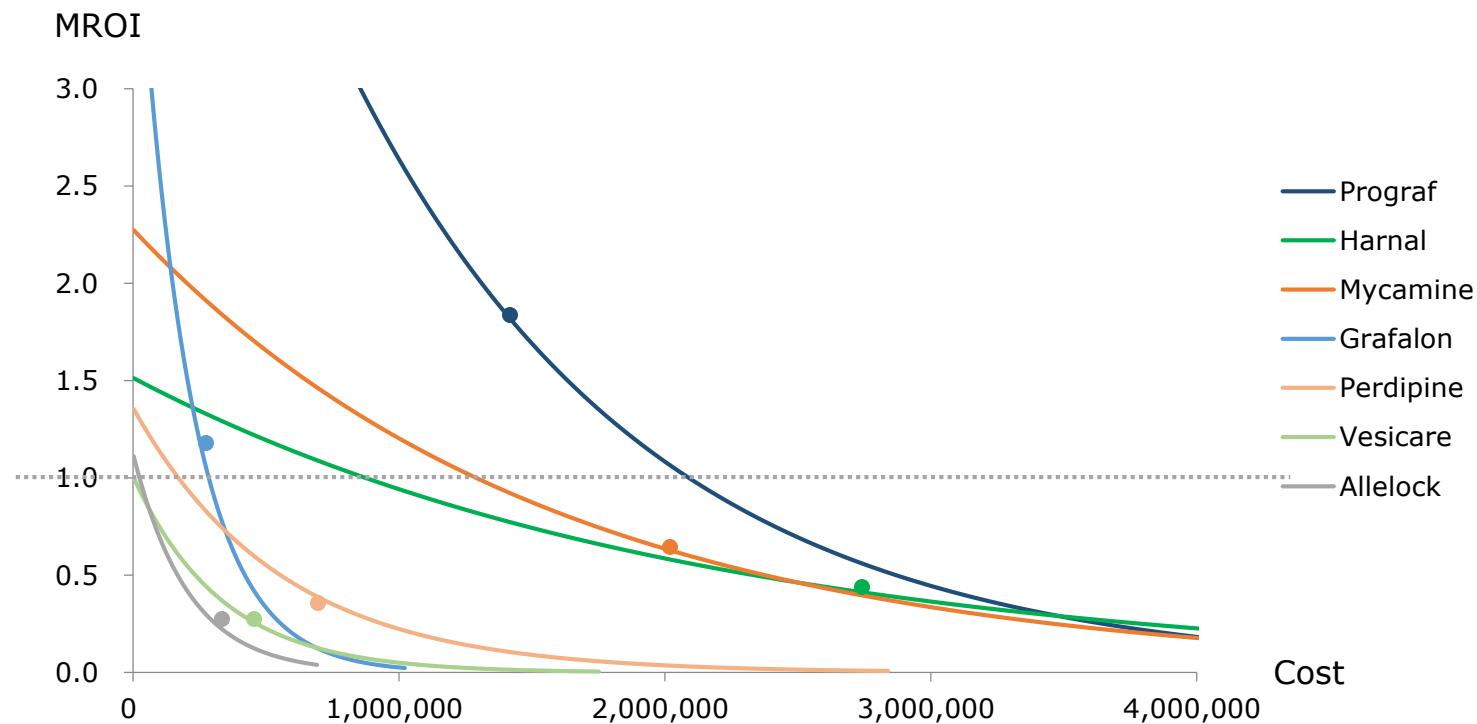
Most products are over spending on calls



	Prograf	Harnal	Mycamine	Grafalon	Perdipine	Vesicare	Allelock
Current monthly cost	3,543,292	7,940,209	2,691,320	296,692	2,590,570	1,496,657	618,382
Current MROI	0.8	0.2	0.7	1.1	0.2	0.1	0.6

Most products needs to decrease spending on department meeting for promotion optimization

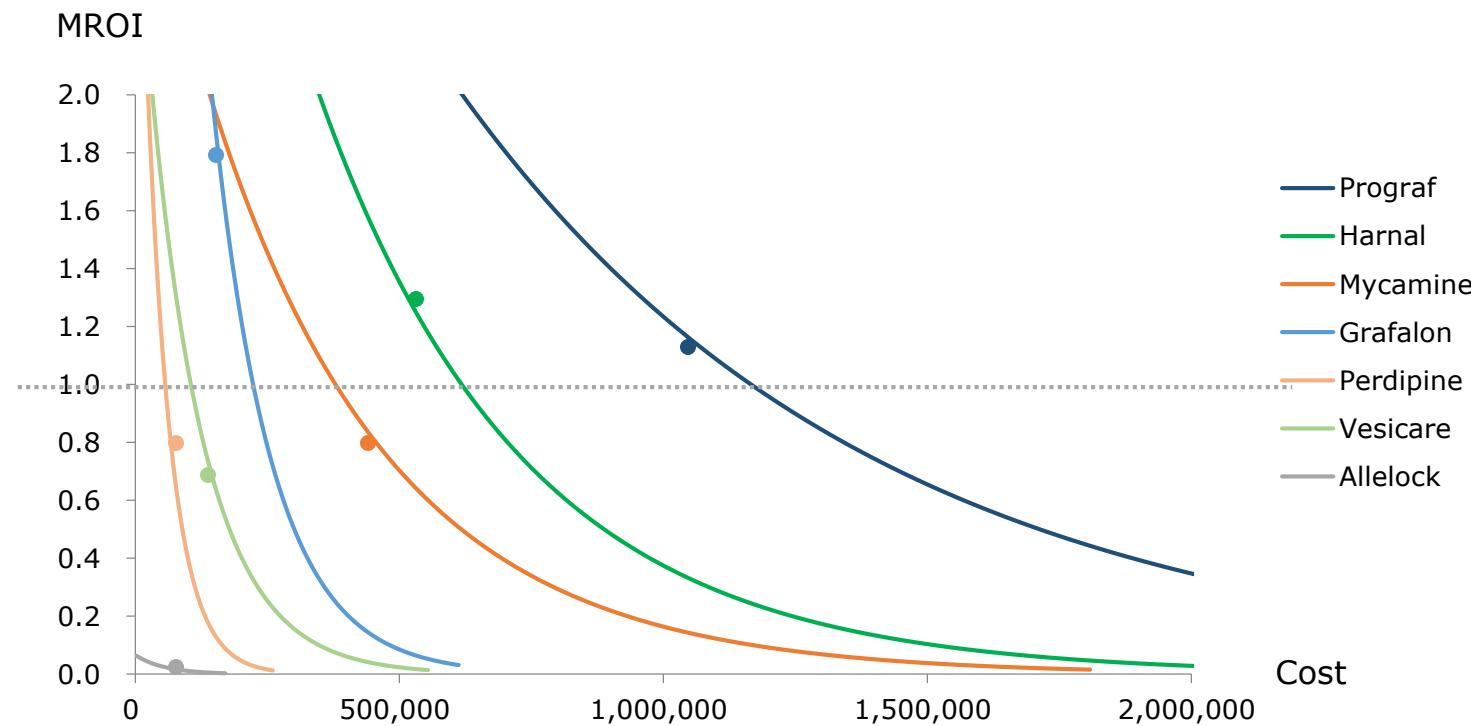
MROI for department meeting (Monthly mean)



	Prograf	Harnal	Mycamine	Grafalon	Perdipine	Vesicare	Allelock
Current monthly cost	1,458,203	2,732,837	2,040,724	255,649	710,268	438,330	302,717
Current MROI	1.8	0.4	0.6	1.2	0.4	0.3	0.3

MROI for large meeting is higher than most of the other sales promotion activities

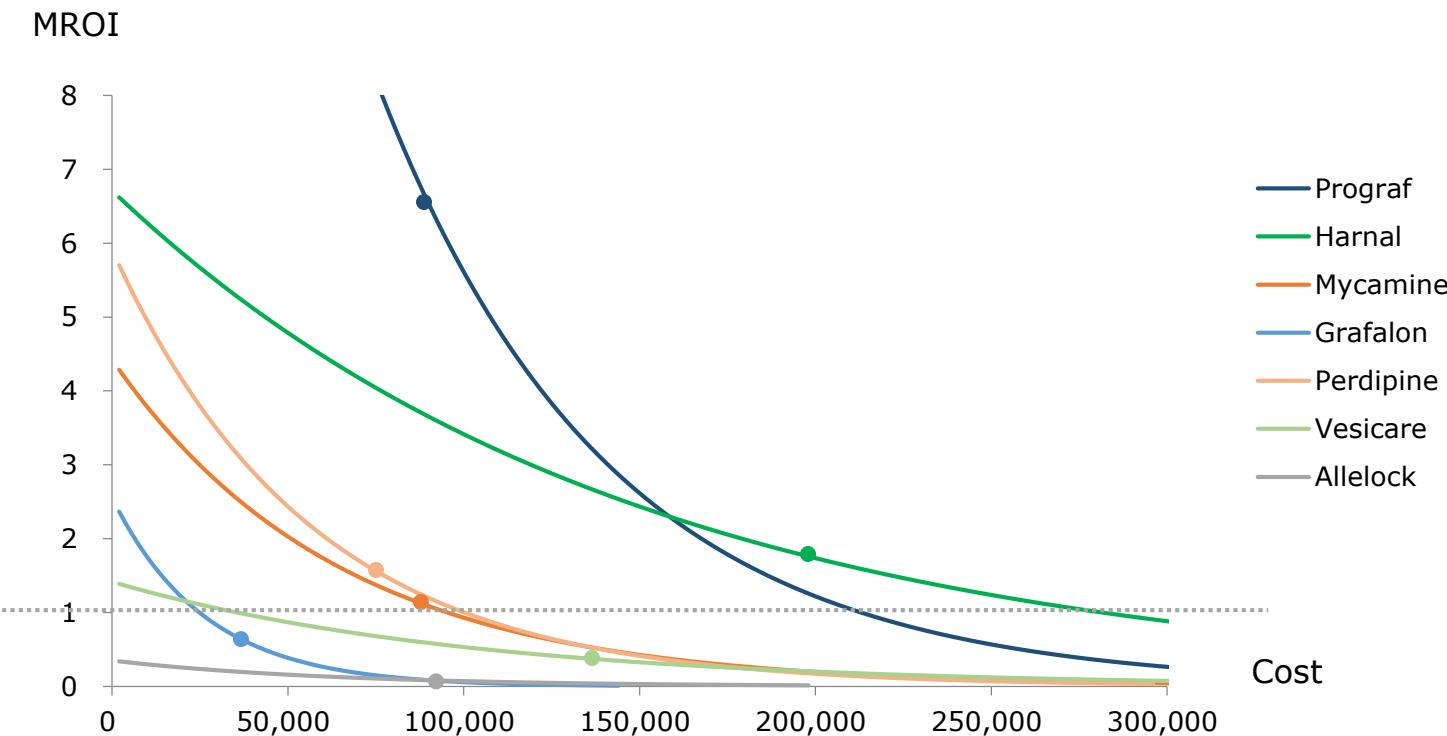
MROI for large Meeting (Monthly mean)



	Prograf	Harnal	Mycamine	Grafalon	Perdipine	Vesicare	Allelock
Current monthly cost	1,059,154	521,571	452,070	153,201	65,424	138,688	74,828
Current MROI	1.1	1.3	0.8	1.8	0.8	0.7	0.02

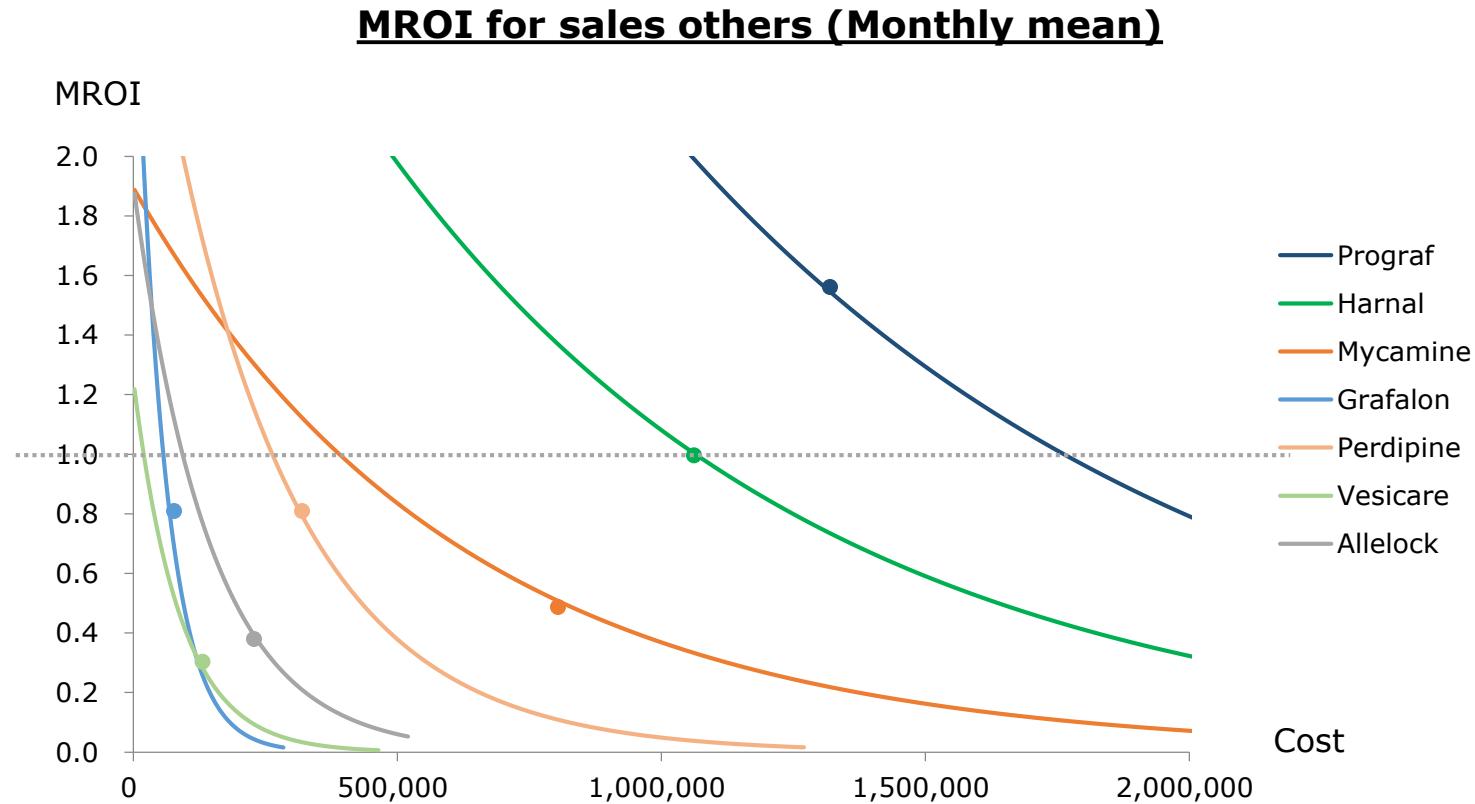
MROI for Prograf is extremely high, but it will drop rapidly with additional spending as its curve is steep

MROI for training (Monthly mean)



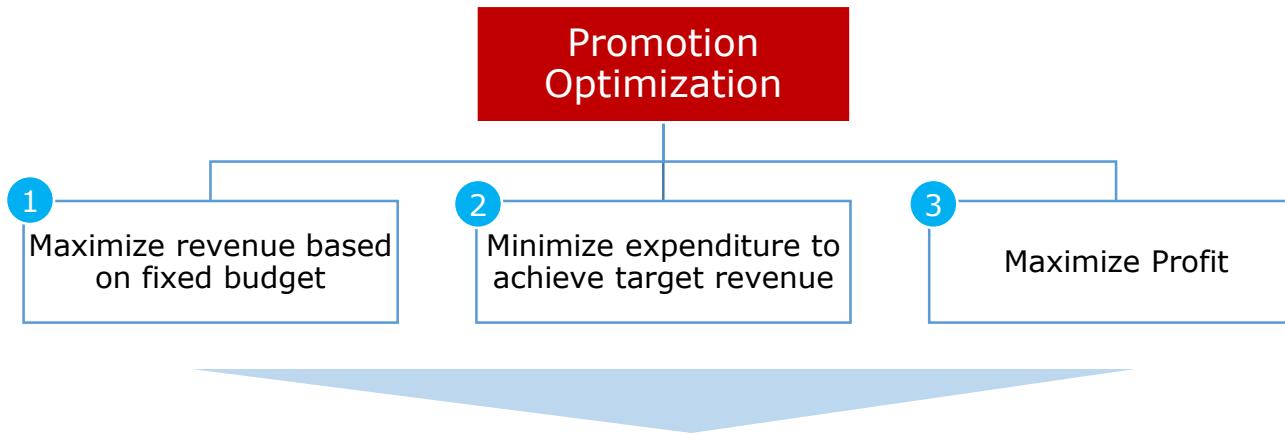
	Prograf	Harnal	Mycamine	Grafalon	Perdipine	Vesicare	Allelock
Current monthly cost	87,450	197,166	84,750	36,497	74,492	135,709	86,674
Current MROI	6.7	1.8	1.2	0.6	1.5	0.3	0.1

Most products have MROI for sales others lower than 1, which means overspending in this channel



	Prograf	Harnal	Mycamine	Grafalon	Perdipine	Vesicare	Allelock
Current monthly cost	1,300,368	1,043,542	786,817	71,232	317,920	116,403	227,261
Current MROI	1.6	1.0	0.5	0.8	0.8	0.3	0.4

Three types of optimization can be achieved to guide resource allocation



Channel	Cost % before opt	Fixed Budget Scenario		Fixed Revenue Scenario		Max Profit Scenario	
		Cost % after opt	Budget Change	Cost % after opt	Budget Change	Cost % after opt	Budget Change
National meeting	6.3%	8.1%	30%	8.9%	29%	7.6%	30%
Intl. meeting	0.7%	1.0%	30%	1.1%	30%	0.9%	30%
Mktng Others	2.2%	2.9%	30%	3.1%	30%	2.7%	30%
Call	43.2%	30.9%	-28%	33.3%	-30%	33.2%	-18%
Dept. meeting	17.8%	23.1%	30%	22.2%	13%	21.7%	30%
Large meeting	12.9%	12.6%	-3%	11.5%	-19%	13.3%	10%
Training	1.1%	1.4%	30%	1.5%	30%	1.3%	30%
Sales others	15.9%	20.1%	27%	18.3%	5%	19.3%	30%
Opt results		Revenue +3.6%		Cost -9.3%		Profit +4.0% Cost +6.6%	

1

2

3

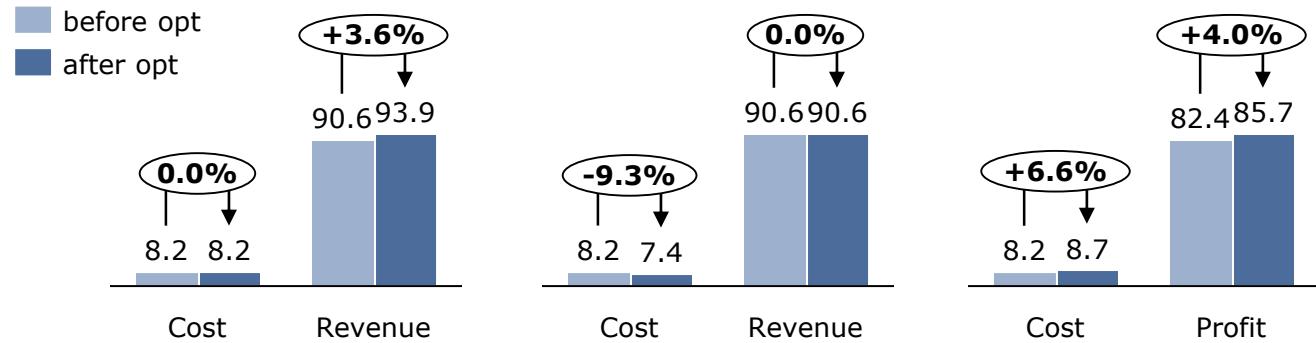


Prograf need to reallocate call expense to other channels in all optimization scenarios

All Channel Optimization – Prograf (Channel spending change is limited to +/- 30% for optimization)

Channel	Cost % before opt	Fixed Budget Scenario		Fixed Revenue Scenario		Max Profit Scenario	
		Cost % after opt	Budget Change	Cost % after opt	Budget Change	Cost % after opt	Budget Change
National meeting	6.3%	8.1%	30%	8.9%	29%	7.6%	30%
Intl. meeting	0.7%	1.0%	30%	1.1%	30%	0.9%	30%
Mktng Others	2.2%	2.9%	30%	3.1%	30%	2.7%	30%
Call	43.2%	30.9%	↓ -28%	33.3%	↓ -30%	33.2%	↓ -18%
Dept. meeting	17.8%	23.1%	30%	22.2%	13%	21.7%	30%
Large meeting	12.9%	12.6%	↓ -3%	11.5%	↓ -19%	13.3%	10%
Training	1.1%	1.4%	30%	1.5%	30%	1.3%	30%
Sales others	15.9%	20.1%	27%	18.3%	5%	19.3%	30%
Opt results		Revenue +3.6%		Cost -9.3%		Profit +4.0% Cost +6.6%	

Total revenue or cost change before and after optimization (Million)



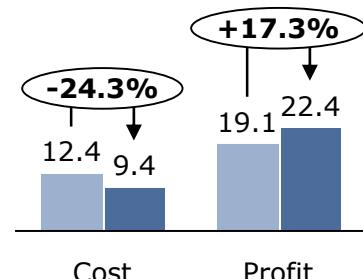
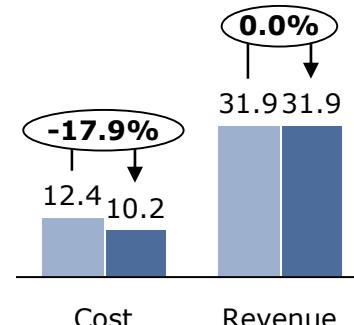
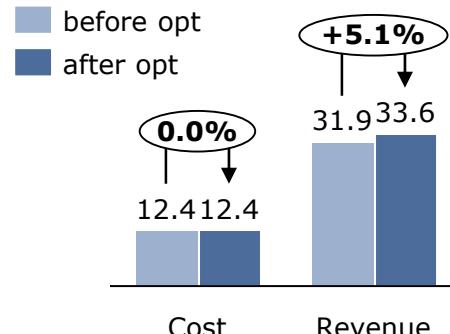
Harnal can increase profit 17% by promotion optimization

All Channel Optimization - Harnal

(Channel spending change is limited to +/- 30% for optimization)

Channel	Cost % before opt	Fixed Budget Scenario		Fixed Revenue Scenario		Max Profit Scenario	
		Cost % after opt	Budget Change	Cost % after opt	Budget Change	Cost % after opt	Budget Change
National meeting	2.0%	2.6%	30%	3.1%	30%	3.4%	30%
Intl. meeting	0.4%	0.5%	30%	0.6%	30%	0.6%	30%
Mktng Others	0.6%	0.8%	30%	1.0%	30%	1.1%	30%
Call	63.9%	52.7%	⬇️ -18%	54.4%	⬇️ -30%	59.1%	⬇️ -30%
Dept. meeting	22.0%	28.8%	30%	23.2%	⬇️ -13%	20.3%	⬇️ -30%
Large meeting	4.2%	5.5%	30%	6.6%	30%	6.6%	18%
Training	1.6%	2.1%	30%	2.5%	30%	2.7%	30%
Sales others	8.4%	11.0%	30%	13.3%	30%	11.3%	2%
Opt results		Revenue +5.1%		Cost -17.9%		Profit +17.3% Cost -24.3%	

Total revenue or cost change before and after optimization (Million)



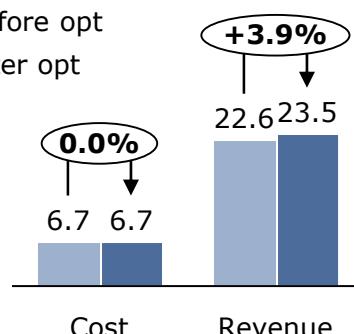
Mycamine can save cost on promotions and yet reach max profit

All Channel Optimization - Mycamine (Channel spending change is limited to +/- 30% for optimization)

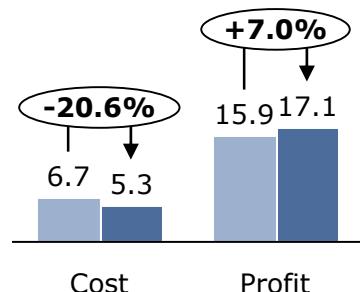
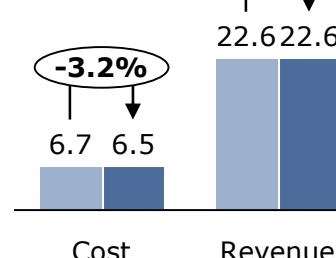
Channel	Cost % before opt	Fixed Budget Scenario		Fixed Revenue Scenario		Max Profit Scenario	
		Cost % after opt	Budget Change	Cost % after opt	Budget Change	Cost % after opt	Budget Change
National meeting	5.0%	6.5%	30%	6.7%	30%	7.2%	15%
Intl. meeting	2.0%	2.6%	30%	2.7%	30%	3.3%	30%
Mktng Others	2.2%	2.8%	30%	3.2%	30%	4.0%	30%
Call	40.3%	42.0%	4%	42.0%	1%	39.4%	 -22%
Dept. meeting	30.5%	27.5%	 -10%	27.3%	 -13%	26.9%	 -30%
Large meeting	6.8%	7.5%	10%	7.5%	7%	7.1%	 -16%
Training	1.3%	1.6%	30%	1.7%	30%	1.8%	11%
Sales others	11.8%	9.1%	 -23%	8.9%	 -27%	10.4%	 -30%
Opt results		Revenue +3.9%		Cost -3.2%		Profit +7.0% Cost -20.6%	

Total revenue or cost change before and after optimization (Million)

before opt
after opt



0.0%



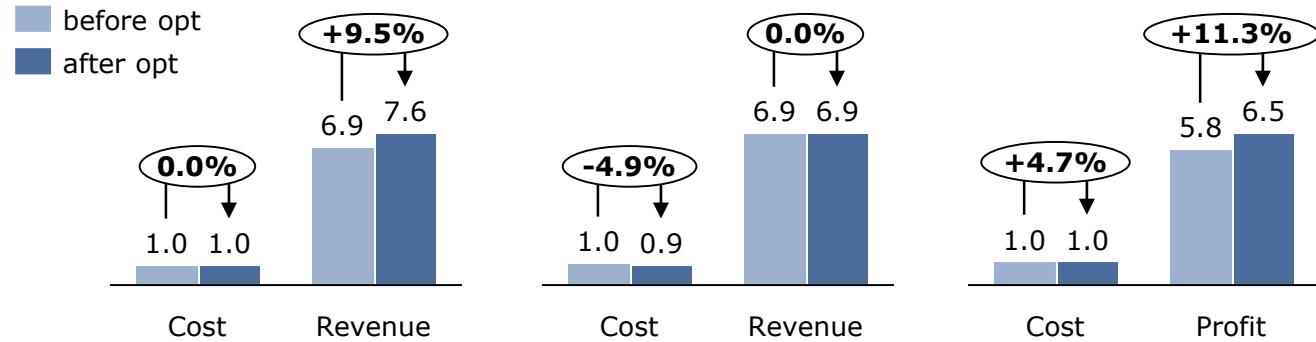
More resources need to be allocated to international meeting and large meeting for Grafalon optimization

All Channel Optimization - Grafalon

(Channel spending change is limited to +/- 30% for optimization)

Channel	Cost % before opt	Fixed Budget Scenario		Fixed Revenue Scenario		Max Profit Scenario	
		Cost % after opt	Budget Change	Cost % after opt	Budget Change	Cost % after opt	Budget Change
National meeting	12.2%	9.3%	⬇️ -24%	9.0%	⬇️ -30%	9.5%	⬇️ -18%
Intl. meeting	3.8%	4.9%	30%	5.2%	30%	4.7%	30%
Mktng Others	1.1%	0.7%	⬇️ -30%	0.8%	⬇️ -30%	0.7%	⬇️ -30%
Call	30.3%	29.7%	⬇️ -2%	28.9%	⬇️ -9%	30.1%	4%
Dept. meeting	26.1%	27.3%	5%	26.7%	⬇️ -3%	27.6%	11%
Large meeting	15.6%	20.3%	30%	21.4%	30%	19.4%	30%
Training	3.7%	2.6%	⬇️ -30%	2.7%	⬇️ -30%	2.5%	⬇️ -30%
Sales others	7.3%	5.2%	⬇️ -28%	5.3%	⬇️ -30%	5.4%	⬇️ -22%
Opt results		Revenue +9.5%		Cost -4.9%		Profit +11.3% Cost +4.7%	

Total revenue or cost change before and after optimization (Million)

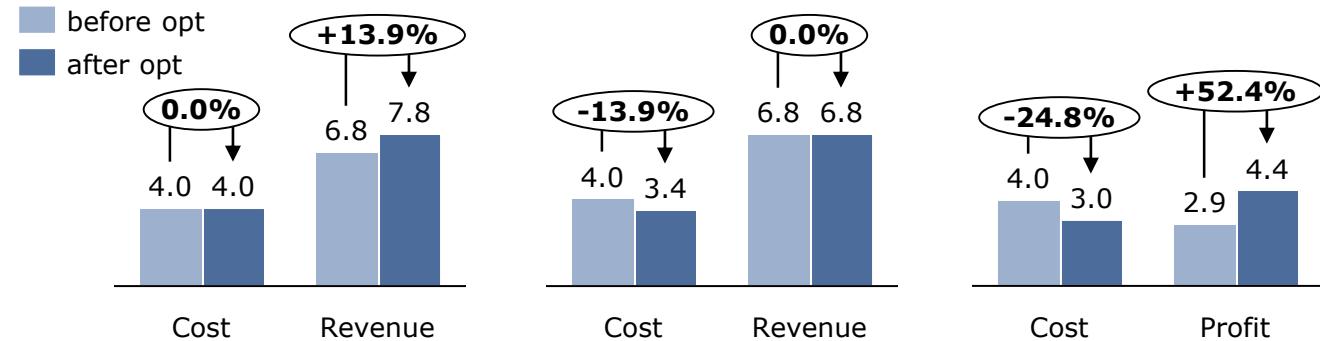


Perdipine Sales call is a key item for promotion optimization

All Channel Optimization - Perdipine (Channel spending change is limited to +/- 30% for optimization)

Channel	Cost % before opt	Fixed Budget Scenario		Fixed Revenue Scenario		Max Profit Scenario	
		Cost % after opt	Budget Change	Cost % after opt	Budget Change	Cost % after opt	Budget Change
National meeting	2.6%	3.4%	30%	4.0%	30%	4.6%	30%
Intl. meeting	1.4%	1.9%	30%	2.2%	30%	2.5%	30%
Mktng Others	1.1%	1.3%	19%	1.6%	22%	1.6%	8%
Call	65.4%	56.6%	↓ -13%	53.3%	↓ -30%	60.8%	↓ -30%
Dept. meeting	17.9%	21.7%	21%	21.6%	4%	16.7%	↓ -30%
Large meeting	1.7%	2.1%	30%	2.5%	30%	1.9%	↓ -15%
Training	1.9%	2.4%	30%	2.8%	30%	3.2%	30%
Sales others	8.0%	10.4%	30%	12.1%	30%	8.8%	↓ -18%
Opt results		Revenue +13.9%		Cost -13.9%		Profit +52.4% Cost -24.8%	

Total revenue or cost change before and after optimization (Million)



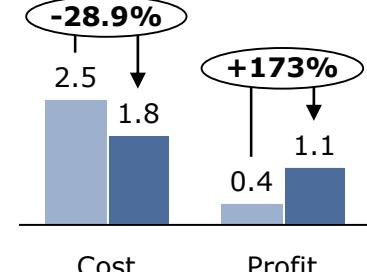
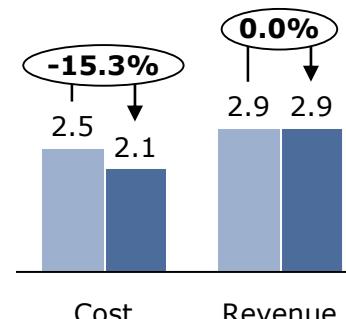
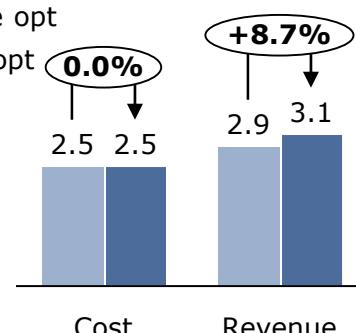
Sales call and department meeting are two key areas to focus for Vesicare promotion optimization

All Channel Optimization – Vesicare (Channel spending change is limited to +/- 30% for optimization)

Channel	Cost % before opt	Fixed Budget Scenario		Fixed Revenue Scenario		Max Profit Scenario	
		Cost % after opt	Budget Change	Cost % after opt	Budget Change	Cost % after opt	Budget Change
National meeting	2.8%	3.6%	30%	4.3%	30%	3.0%	↓ -24%
Intl. meeting	2.2%	2.9%	30%	3.4%	30%	2.6%	↓ -18%
Mktng Others	0.6%	0.8%	30%	0.9%	30%	1.1%	30%
Call	60.7%	49.0%	↓ -19%	50.2%	↓ -30%	59.8%	↓ -30%
Dept. meeting	17.8%	23.1%	30%	19.1%	↓ -9%	17.5%	↓ -30%
Large meeting	5.6%	7.3%	30%	8.6%	30%	5.9%	↓ -25%
Training	5.5%	7.2%	30%	7.5%	16%	5.4%	↓ -30%
Sales others	4.7%	6.1%	30%	5.9%	6%	4.7%	↓ -30%
Opt results		Revenue +8.7%		Cost -15.3%		Profit +172.6% Cost -28.9%	

Total revenue or cost change before and after optimization (Million)

before opt
after opt



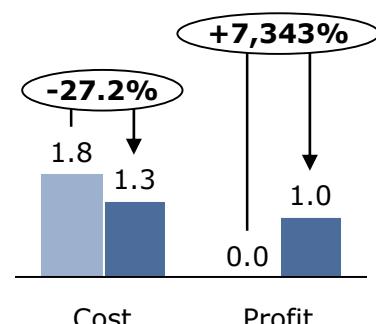
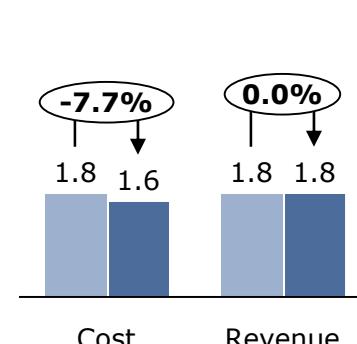
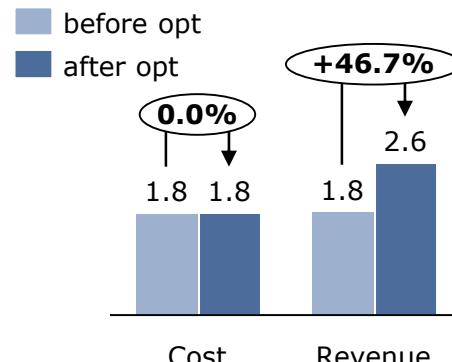
Allelock is still in the growth stage. KPI will be different once it reaches mature stage. Continuous increase on investment is needed and optimization results are for reference only

All Channel Optimization - Allelock

(Channel spending change is limited to +/- 30% for optimization)

Channel	Cost % before opt	Fixed Budget Scenario		Fixed Revenue Scenario		Max Profit Scenario	
		Cost % after opt	Budget Change	Cost % after opt	Budget Change	Cost % after opt	Budget Change
National meeting	10.3%	8.4%	⬇️ -18%	8.1%	⬇️ -28%	9.9%	⬇️ -30%
Intl. meeting	2.3%	1.9%	⬇️ -18%	1.8%	⬇️ -28%	2.2%	⬇️ -30%
Mktng Others	14.1%	16.0%	13%	16.1%	6%	17.4%	-10%
Call	34.6%	44.0%	27%	43.1%	15%	33.3%	⬇️ -30%
Dept. meeting	17.0%	11.9%	⬇️ -30%	12.9%	⬇️ -30%	16.3%	⬇️ -30%
Large meeting	4.2%	2.9%	⬇️ -30%	3.2%	⬇️ -30%	4.0%	⬇️ -30%
Training	4.9%	3.4%	⬇️ -30%	3.7%	⬇️ -30%	4.7%	⬇️ -30%
Sales others	12.7%	11.5%	⬇️ -10%	11.3%	⬇️ -18%	12.2%	⬇️ -30%
Opt results		Revenue +46.7%		Cost -7.7%		Profit +7342.7% Cost -27.2%	

Total revenue or cost change before and after optimization (Million)



Optimization Summary

Marketing Promotions

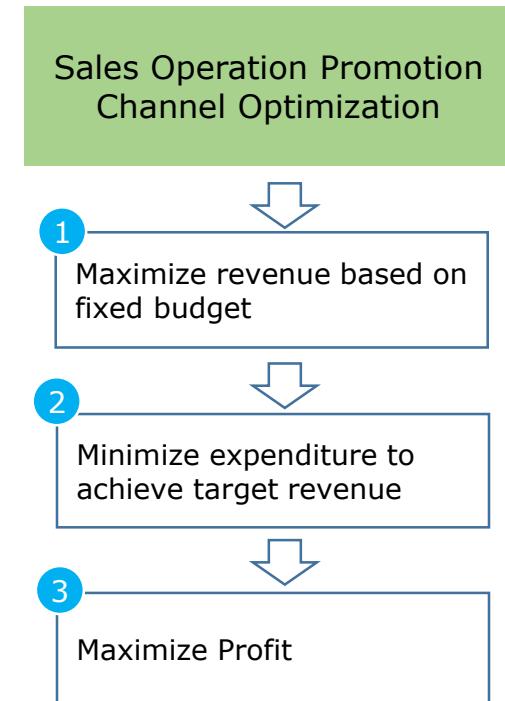
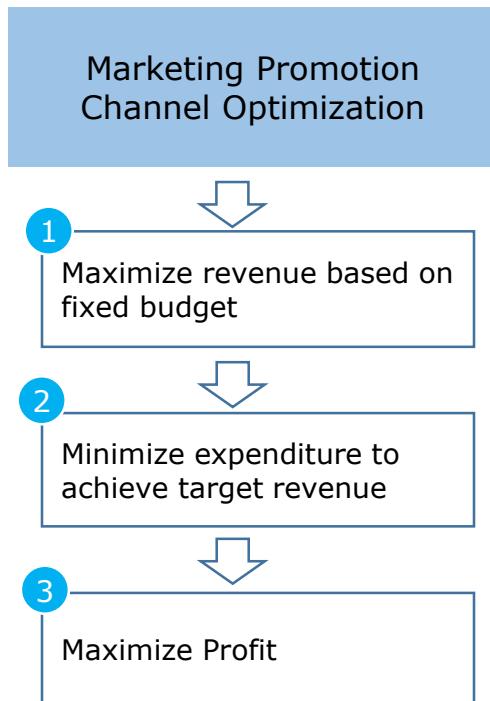
- For the three products (Prograf, Harnal, and Mycamine) that contributed most to ACN sales, there are still room to increase spending on all marketing promotions for optimization
- Among other products, spending on national meeting is suggested to decrease for optimization, such as for Grafalon and Vesicare
- Promotion optimization for new product like Allelock is for reference only

Sales Promotions

- Decrease spending in sales call is suggested for all brands in optimization. However, competitive coverage is needed in high competition market. Solutions for more effective calls should be investigated, e.g. more targeted coverage, innovate method to cut call cost
- Department meeting is also a key area for optimization where decrease spending is suggested for most products
- Promotion optimization for new product like Allelock is for reference only



Two more set of resource allocation for sales operation and marketing separately were also performed



Prograf marketing cost need to increase 30% to reach maximized profit

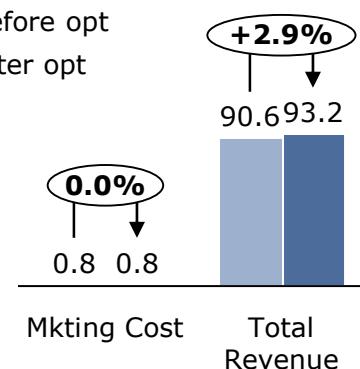
Marketing Optimization - Prograf

(Channel spending change is limited to +/- 30% for optimization)

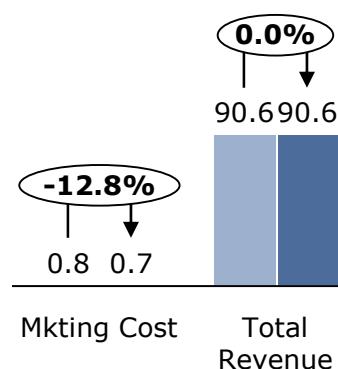
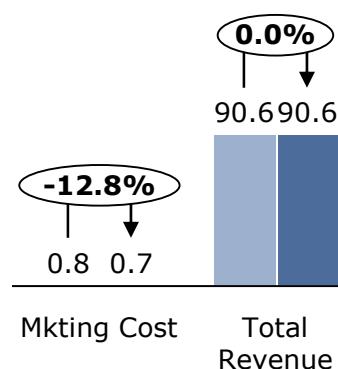
Channel	Mkting Cost % before opt	Fixed Budget Scenario		Fixed Revenue Scenario		Max Profit Scenario	
		Mkting Cost % after opt	Budget Change	Mkting Cost % after opt	Budget Change	Mkting Cost % after opt	Budget Change
National meeting	68.1%	58.5%	⬇️ -14%	54.7%	⬇️ -30%	68.1%	30%
Intl. meeting	8.1%	10.5%	30%	10.1%	9%	8.1%	30%
Mktng Others	23.9%	31.0%	30%	35.2%	29%	23.9%	30%
Call							
Dept. meeting							
Large meeting							
Training							
Sales others							
Opt results		Total Revenue +2.9%		Mktng Cost -12.8%		Total Profit +3.4%	
						Mktng Cost +30.0%	

Total revenue or marketing cost change before and after optimization (Million)

before opt
after opt



+2.9%
90.6 93.2
0.0%



Harnal needs to increase marketing spending on national meeting for optimization

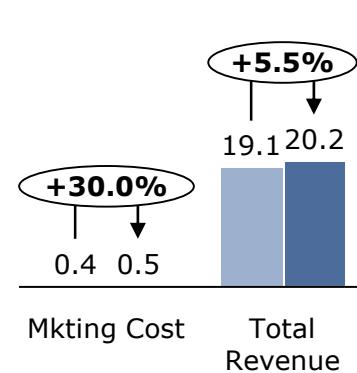
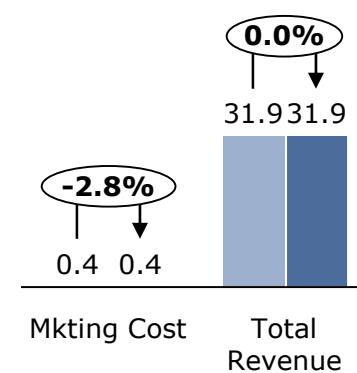
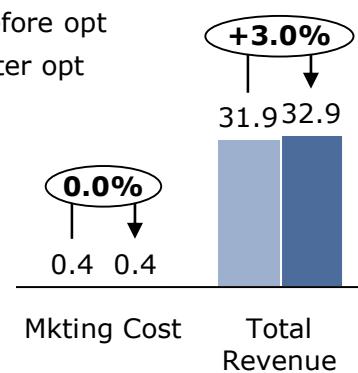
Marketing Optimization - Harnal

(Channel spending change is limited to +/- 30% for optimization)

Channel	Mkting Cost % before opt	Fixed Budget Scenario		Fixed Revenue Scenario		Max Profit Scenario	
		Mkting Cost % after opt	Budget Change	Mkting Cost % after opt	Budget Change	Mkting Cost % after opt	Budget Change
National meeting	66.6%	76.1%	14%	75.9%	11%	66.6%	30%
Intl. meeting	12.0%	8.4%	↓ -30%	8.6%	↓ -30%	12.0%	30%
Mktng Others	21.4%	15.5%	↓ -28%	15.4%	↓ -30%	21.4%	30%
Call							
Dept. meeting							
Large meeting							
Training							
Sales others							
Opt results		Total Revenue +3.0%		Mktng Cost -2.8%		Total Profit +5.5% Mktng Cost +30.0%	

Total revenue or marketing cost change before and after optimization (Million)

before opt
after opt



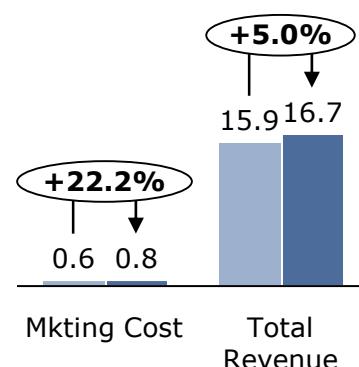
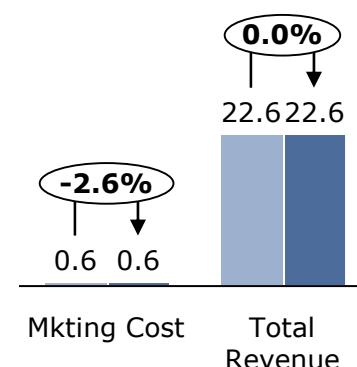
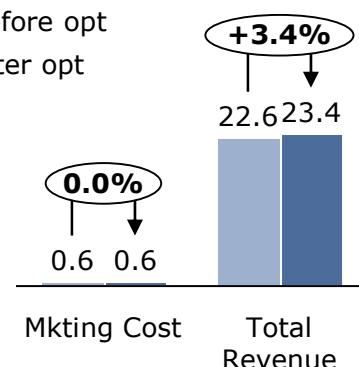
Mycamine needs to increase marketing spending on international meeting for optimization

Marketing Optimization - Mycamine (Channel spending change is limited to +/- 30% for optimization)

Channel	Mkting Cost % before opt	Fixed Budget Scenario		Fixed Revenue Scenario		Max Profit Scenario	
		Mkting Cost % after opt	Budget Change	Mkting Cost % after opt	Budget Change	Mkting Cost % after opt	Budget Change
National meeting	52.9%	42.9%	⬇️ -19%	42.6%	⬇️ -22%	49.9%	15%
Intl. meeting	21.4%	25.5%	19%	25.6%	17%	22.8%	30%
Mktng Others	25.6%	31.6%	23%	31.8%	21%	27.3%	30%
Call							
Dept. meeting							
Large meeting							
Training							
Sales others							
Opt results		Total Revenue +3.4%		Mktng Cost -2.6%		Total Profit +5.0% Mktng Cost +22.2%	

Total revenue or marketing cost change before and after optimization (Million)

before opt
after opt



Just by optimize Grafalon marketing cost allocation can increase total revenue by 9% without any cost increase

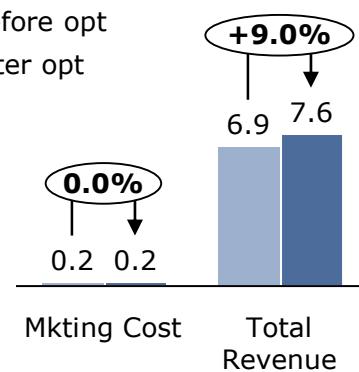
Marketing Optimization - Grafalon

(Channel spending change is limited to +/- 30% for optimization)

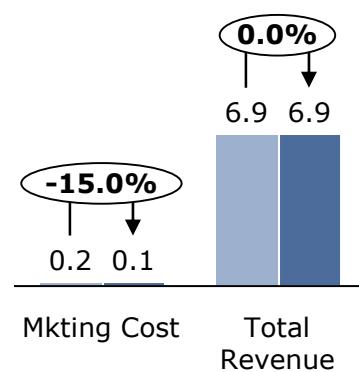
Channel	Mkting Cost % before opt	Fixed Budget Scenario		Fixed Revenue Scenario		Max Profit Scenario	
		Mkting Cost % after opt	Budget Change	Mkting Cost % after opt	Budget Change	Mkting Cost % after opt	Budget Change
National meeting	71.7%	66.9%	↓ -7%	61.1%	↓ -28%	63.9%	↓ -18%
Intl. meeting	22.1%	28.7%	30%	33.8%	30%	31.4%	30%
Mkting Others	6.2%	4.3%	↓ -30%	5.1%	↓ -30%	4.7%	↓ -30%
Call							
Dept. meeting							
Large meeting							
Training							
Sales others							
Opt results		Total Revenue +9.0%		Mkting Cost -15.0%		Total Profit +10.8% Mkting Cost -8.3%	

Total revenue or marketing cost change before and after optimization (Million)

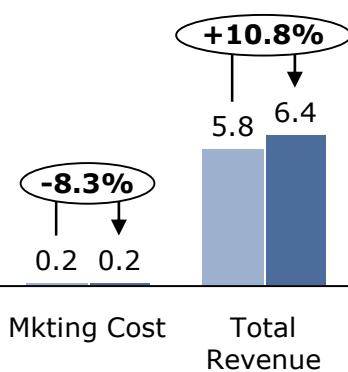
before opt
after opt



0.0%
-15.0%
0.2 0.1



+10.8%
-8.3%
0.2 0.2



Total Perdipine marketing spending needs an increase to reach maximized profit

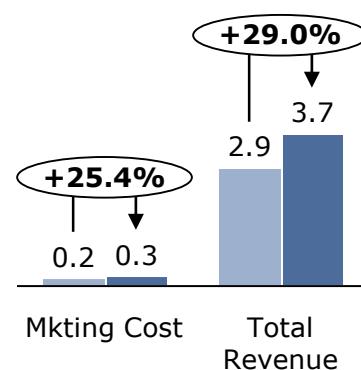
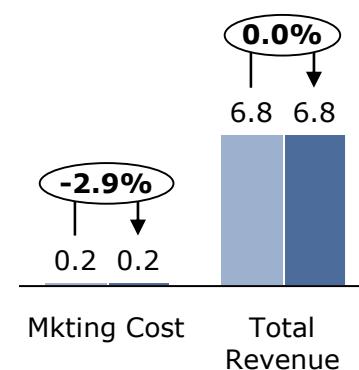
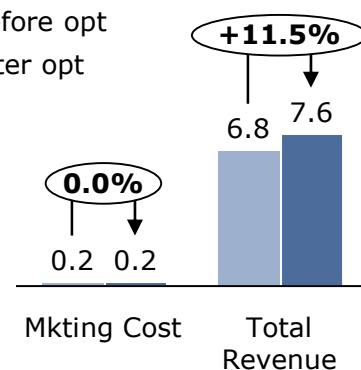
Marketing Optimization - Perdipine

(Channel spending change is limited to +/- 30% for optimization)

Channel	Mkting Cost % before opt	Fixed Budget Scenario		Fixed Revenue Scenario		Max Profit Scenario	
		Mkting Cost % after opt	Budget Change	Mkting Cost % after opt	Budget Change	Mkting Cost % after opt	Budget Change
National meeting	51.0%	57.1%	12%	56.8%	8%	52.9%	30%
Intl. meeting	27.7%	28.0%	1%	27.9%	↓ -2%	28.7%	30%
Mktng Others	21.3%	14.9%	↓ -30%	15.4%	↓ -30%	18.4%	8%
Call							
Dept. meeting							
Large meeting							
Training							
Sales others							
Opt results		Total Revenue +11.5%		Mktng Cost -2.9%		Total Profit +29.0% Mktng Cost +25.4%	

Total revenue or marketing cost change before and after optimization (Million)

before opt
after opt



Vesicare spending on marketing needs an decrease to reach maximized profit

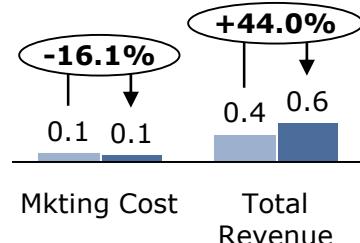
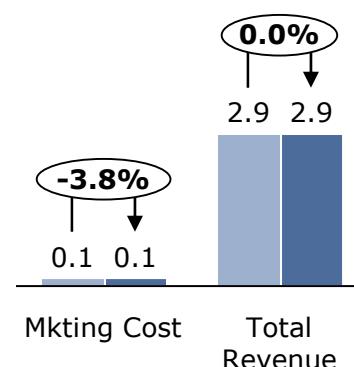
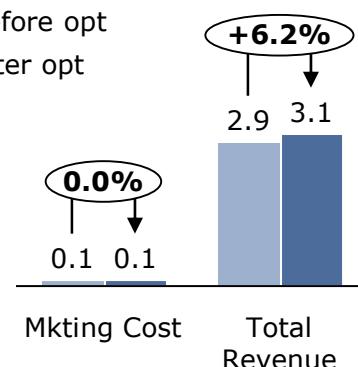
Marketing Optimization - Vesicare

(Channel spending change is limited to +/- 30% for optimization)

Channel	Mkting Cost % before opt	Fixed Budget Scenario		Fixed Revenue Scenario		Max Profit Scenario	
		Mkting Cost % after opt	Budget Change	Mkting Cost % after opt	Budget Change	Mkting Cost % after opt	Budget Change
National meeting	49.6%	46.6%	⬇️ -6%	46.2%	⬇️ -10%	44.8%	⬇️ -24%
Intl. meeting	40.1%	40.0%	0%	39.8%	⬇️ -4%	39.2%	⬇️ -18%
Mktng Others	10.3%	13.4%	30%	13.9%	30%	16.0%	30%
Call							
Dept. meeting							
Large meeting							
Training							
Sales others							
Opt results		Total Revenue +6.2%		Mktng Cost -3.8%		Total Profit +44.0%	
						Mktng Cost -16.1%	

Total revenue or marketing cost change before and after optimization (Million)

before opt
after opt



Optimization results for new product like Allelock is for reference only

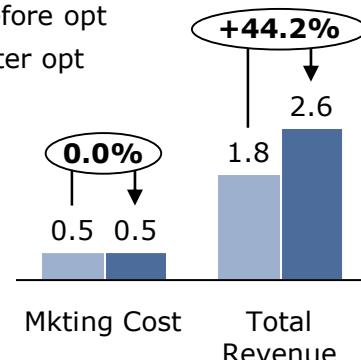
Marketing Optimization - Allelock

(Channel spending change is limited to +/- 30% for optimization)

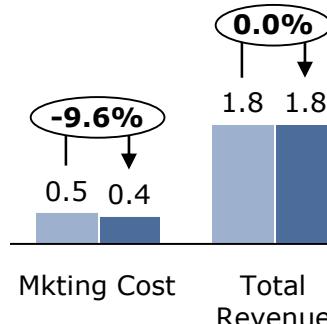
Channel	Mkting Cost % before opt	Fixed Budget Scenario		Fixed Revenue Scenario		Max Profit Scenario	
		Mkting Cost % after opt	Budget Change	Mkting Cost % after opt	Budget Change	Mkting Cost % after opt	Budget Change
National meeting	38.6%	32.5%	⬇️-16%	31.2%	⬇️-27%	33.5%	⬇️-30%
Intl. meeting	8.5%	7.1%	⬇️-16%	6.8%	⬇️-27%	7.4%	⬇️-30%
Mktng Others	52.9%	60.3%	14%	62.0%	6%	59.1%	⬇️-10%
Call							
Dept. meeting							
Large meeting							
Training							
Sales others							
Opt results		Total Revenue +44.2%		Mktng Cost -9.6%		Total Profit +6,060.3% Mktng Cost -19.4%	

Total revenue or marketing cost change before and after optimization (Million)

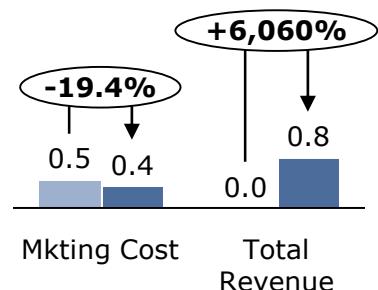
before opt
after opt



-9.6%



+6,060%



Prograf needs to decrease spending on sales for promotion optimization

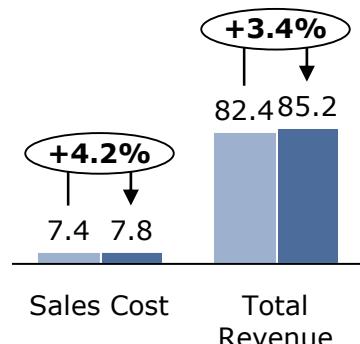
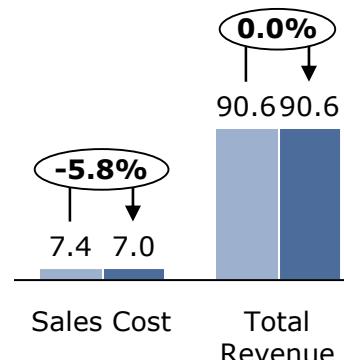
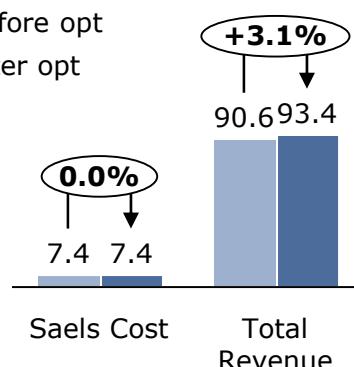
Sales Optimization - Prograf

(Channel spending change is limited to +/- 30% for optimization)

Channel	Sales Cost % before opt	Fixed Budget Scenario		Fixed Revenue Scenario		Max Profit Scenario	
		Sales Cost % after opt	Budget Change	Sales Cost % after opt	Budget Change	Sales Cost % after opt	Budget Change
National meeting	Marketing Cost Keeps Constant	47.6%	35.8%	35.4%	-30%	37.3%	-18%
Intl. meeting		19.6%	25.5%	26.5%	28%	24.4%	30%
Mktng Others		14.2%	14.7%	14.3%	-5%	15.0%	10%
Call	47.6%	35.8%	↓ -25%	35.4%	↓ -30%	37.3%	↓ -18%
Dept. meeting	19.6%	25.5%	30%	26.5%	28%	24.4%	30%
Large meeting	14.2%	14.7%	4%	14.3%	↓ -5%	15.0%	10%
Training	1.2%	1.5%	30%	1.6%	30%	1.5%	30%
Sales others	17.5%	22.5%	29%	22.2%	20%	21.8%	30%
Opt results		Total Revenue +3.1%		Sales Cost -5.8%		Total Profit +3.4% Sales Cost +4.2%	

Total revenue or Sales cost change before and after optimization (Million)

before opt
after opt



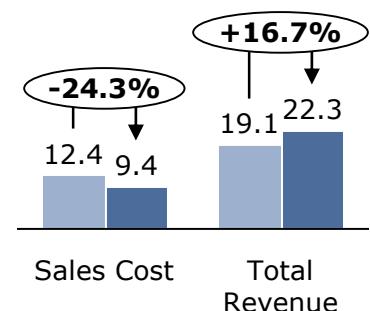
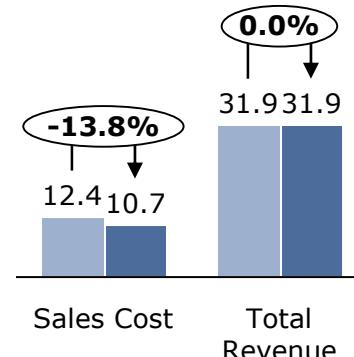
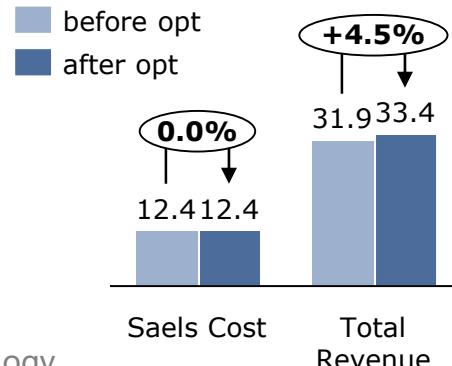
Harnal needs to decrease spending on sales for promotion optimization

Sales Optimization - Harnal

(Channel spending change is limited to +/- 30% for optimization)

Channel	Sales Cost % before opt	Fixed Budget Scenario		Fixed Revenue Scenario		Max Profit Scenario	
		Sales Cost % after opt	Budget Change	Sales Cost % after opt	Budget Change	Sales Cost % after opt	Budget Change
National meeting	Marketing Cost Keeps Constant	63.9%	53.0%	51.9%	-30%	59.1%	-30%
Intl. meeting		22.0%	28.6%	26.7%	5%	20.3%	-30%
Mktng Others		4.2%	5.5%	6.3%	30%	6.6%	18%
Call	63.9%	53.0%	↓ -17%	51.9%	↓ -30%	59.1%	↓ -30%
Dept. meeting	22.0%	28.6%	30%	26.7%	5%	20.3%	↓ -30%
Large meeting	4.2%	5.5%	30%	6.3%	30%	6.6%	18%
Training	1.6%	2.1%	30%	2.4%	30%	2.7%	30%
Sales others	8.4%	10.9%	30%	12.7%	30%	11.3%	2%
Opt results		Total Revenue +4.5%		Sales Cost -13.8%		Total Profit +16.7% Sales Cost -24.3%	

Total revenue or Sales cost change before and after optimization (Million)

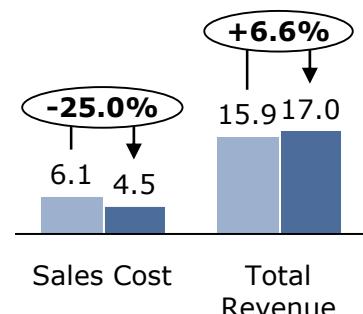
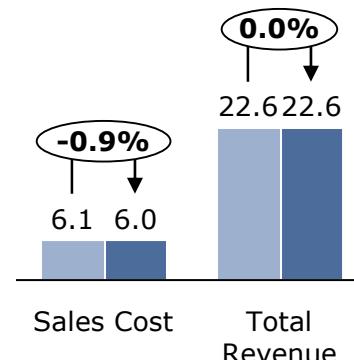
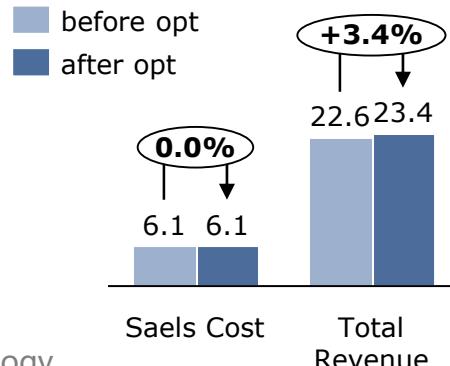


Mycamine needs to decrease spending on department meeting for most optimization scenarios

Sales Optimization - Mycamine (Channel spending change is limited to +/- 30% for optimization)

Channel	Sales Cost % before opt	Fixed Budget Scenario		Fixed Revenue Scenario		Max Profit Scenario	
		Sales Cost % after opt	Budget Change	Sales Cost % after opt	Budget Change	Sales Cost % after opt	Budget Change
National meeting	Marketing Cost Keeps Constant	44.4%	47.9%	8%	47.9%	7%	46.0%
Intl. meeting		33.7%	31.5%	↓ -7%	31.4%	↓ -8%	31.5%
Mktng Others		7.5%	8.5%	13%	8.5%	13%	8.3%
Call	44.4%	47.9%	8%	47.9%	7%	46.0%	↓ -22%
Dept. meeting	33.7%	31.5%	↓ -7%	31.4%	↓ -8%	31.5%	↓ -30%
Large meeting	7.5%	8.5%	13%	8.5%	13%	8.3%	↓ -16%
Training	1.4%	1.8%	30%	1.8%	30%	2.1%	11%
Sales others	13.0%	10.4%	-20%	10.4%	-21%	12.1%	↓ -30%
Opt results	Total Revenue +3.4%			Sales Cost -0.9%		Total Profit +6.6% Sales Cost -25.0%	

Total revenue or Sales cost change before and after optimization (Million)

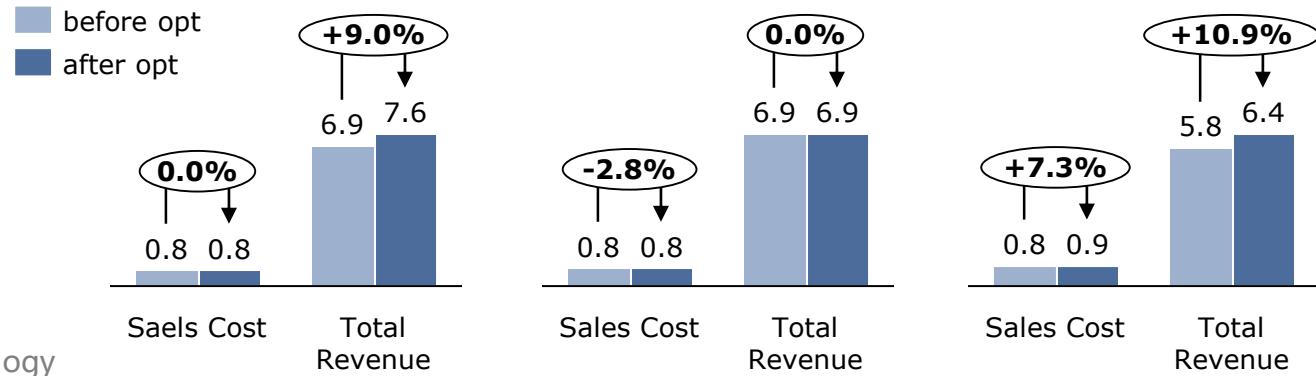


Grafalon needs to increase spending on large meeting for promotion optimization

Sales Optimization - Grafalon (Channel spending change is limited to +/- 30% for optimization)

Channel	Sales Cost % before opt	Fixed Budget Scenario		Fixed Revenue Scenario		Max Profit Scenario	
		Sales Cost % after opt	Budget Change	Sales Cost % after opt	Budget Change	Sales Cost % after opt	Budget Change
National meeting	Marketing Cost Keeps Constant	36.5%	34.5%	33.9%	-10%	35.4%	4%
Intl. meeting		31.4%	31.8%	31.3%	-3%	32.5%	11%
Mktng Others		18.8%	24.5%	25.2%	30%	22.8%	30%
Call	36.5%	34.5%	↓ -6%	33.9%	↓ -10%	35.4%	4%
Dept. meeting	31.4%	31.8%	1%	31.3%	↓ -3%	32.5%	11%
Large meeting	18.8%	24.5%	30%	25.2%	30%	22.8%	30%
Training	4.5%	3.1%	↓ -30%	3.2%	↓ -30%	2.9%	↓ -30%
Sales others	8.8%	6.1%	↓ -30%	6.3%	↓ -30%	6.4%	↓ -22%
Opt results		Total Revenue +9.0%		Sales Cost -2.8%		Total Profit +10.9% Sales Cost +7.3%	

Total revenue or Sales cost change before and after optimization (Million)

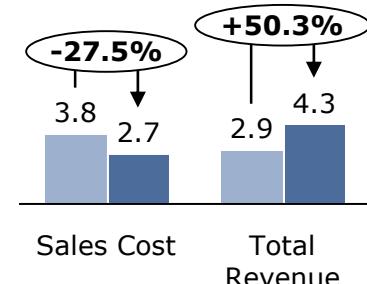
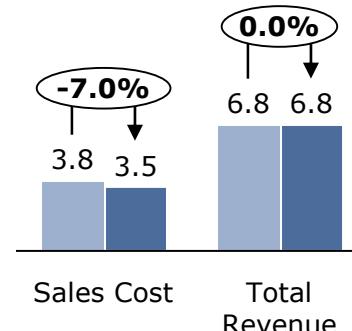
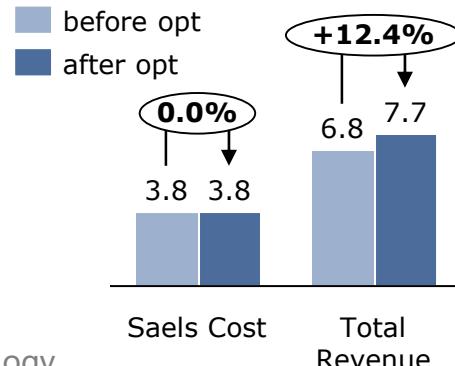


Perdipine sales call is the key area for optimization

Sales Optimization - Perdipine (Channel spending change is limited to +/- 30% for optimization)

Channel	Sales Cost % before opt	Fixed Budget Scenario		Fixed Revenue Scenario		Max Profit Scenario	
		Sales Cost % after opt	Budget Change	Sales Cost % after opt	Budget Change	Sales Cost % after opt	Budget Change
National meeting	Marketing Cost Keeps Constant	68.9%	61.1%	59.8%	↓ -19%	66.6%	↓ -30%
Intl. meeting		18.9%	23.1%	23.2%	14%	18.2%	↓ -30%
Mktng Others		1.7%	2.3%	2.4%	30%	2.0%	↓ -15%
Call	68.9%	61.1%	↓ -11%	59.8%	↓ -19%	66.6%	↓ -30%
Dept. meeting	18.9%	23.1%	22%	23.2%	14%	18.2%	↓ -30%
Large meeting	1.7%	2.3%	30%	2.4%	30%	2.0%	↓ -15%
Training	2.0%	2.6%	30%	2.8%	30%	3.6%	30%
Sales others	8.5%	11.0%	30%	11.8%	30%	9.6%	↓ -18%
Opt results		Total Revenue +12.4%		Sales Cost -7.0%		Total Profit +50.3% Sales Cost -27.5%	

Total revenue or Sales cost change before and after optimization (Million)



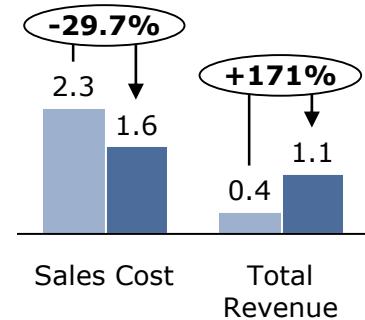
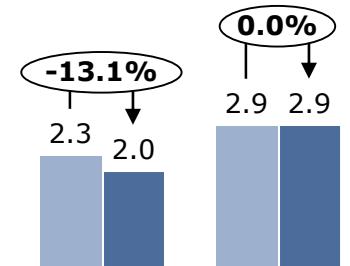
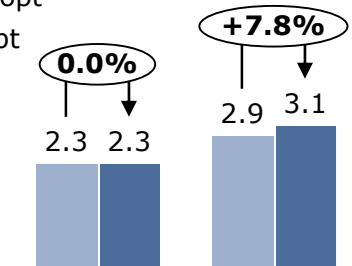
Vesicare sales call is the key area for optimization

Sales Optimization - Vesicare (Channel spending change is limited to +/- 30% for optimization)

Channel	Sales Cost % before opt	Fixed Budget Scenario		Fixed Revenue Scenario		Max Profit Scenario	
		Sales Cost % after opt	Budget Change	Sales Cost % after opt	Budget Change	Sales Cost % after opt	Budget Change
National meeting	Marketing Cost Keeps Constant	64.4%	53.7%	51.8%	↓ -30%	64.1%	↓ -30%
Intl. meeting		18.8%	24.5%	23.4%	8%	18.8%	↓ -30%
Mktng Others		6.0%	7.8%	8.9%	30%	6.4%	↓ -25%
Call	64.4%	53.7%	↓ -17%	51.8%	↓ -30%	64.1%	↓ -30%
Dept. meeting	18.8%	24.5%	30%	23.4%	8%	18.8%	↓ -30%
Large meeting	6.0%	7.8%	30%	8.9%	30%	6.4%	↓ -25%
Training	5.8%	7.6%	30%	8.7%	30%	5.8%	↓ -30%
Sales others	5.0%	6.5%	30%	7.1%	23%	5.0%	↓ -30%
Opt results		Total Revenue +7.8%		Sales Cost -13.1%		Total Profit +171.0% Sales Cost -29.7%	

Total revenue or Sales cost change before and after optimization (Million)

before opt
after opt



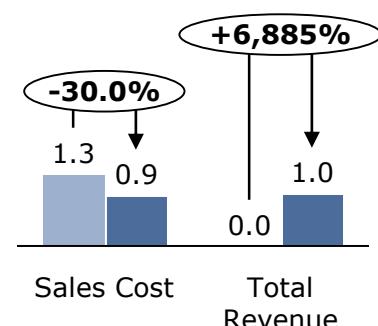
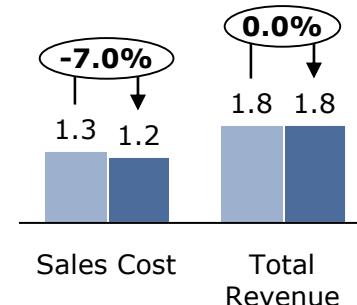
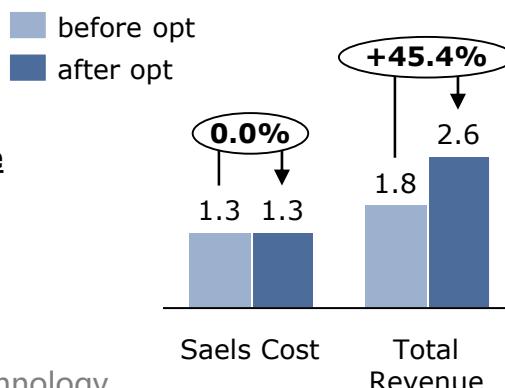
Optimization results for new product like Allelock is for reference only

Sales Optimization - Allelock

(Channel spending change is limited to +/- 30% for optimization)

Channel	Sales Cost % before opt	Fixed Budget Scenario		Fixed Revenue Scenario		Max Profit Scenario	
		Sales Cost % after opt	Budget Change	Sales Cost % after opt	Budget Change	Sales Cost % after opt	Budget Change
National meeting	Marketing Cost Keeps Constant	47.2%	59.3%	26%	58.1%	14%	47.2%
Intl. meeting		23.1%	16.2%	-30%	17.4%	-30%	23.1%
Mktng Others		5.7%	4.0%	-30%	4.3%	-30%	5.7%
Call	47.2%	59.3%	26%	58.1%	14%	47.2%	 -30%
Dept. meeting	23.1%	16.2%	 -30%	17.4%	 -30%	23.1%	 -30%
Large meeting	5.7%	4.0%	 -30%	4.3%	 -30%	5.7%	 -30%
Training	6.6%	4.6%	 -30%	5.0%	 -30%	6.6%	 -30%
Sales others	17.3%	15.9%	 -8%	15.2%	 -19%	17.3%	 -30%
Opt results		Total Revenue +45.4%			Sales Cost -7.0%		Total Profit +6885.0% Sales Cost -30.0%

Total revenue or Sales cost change before and after optimization (Million)

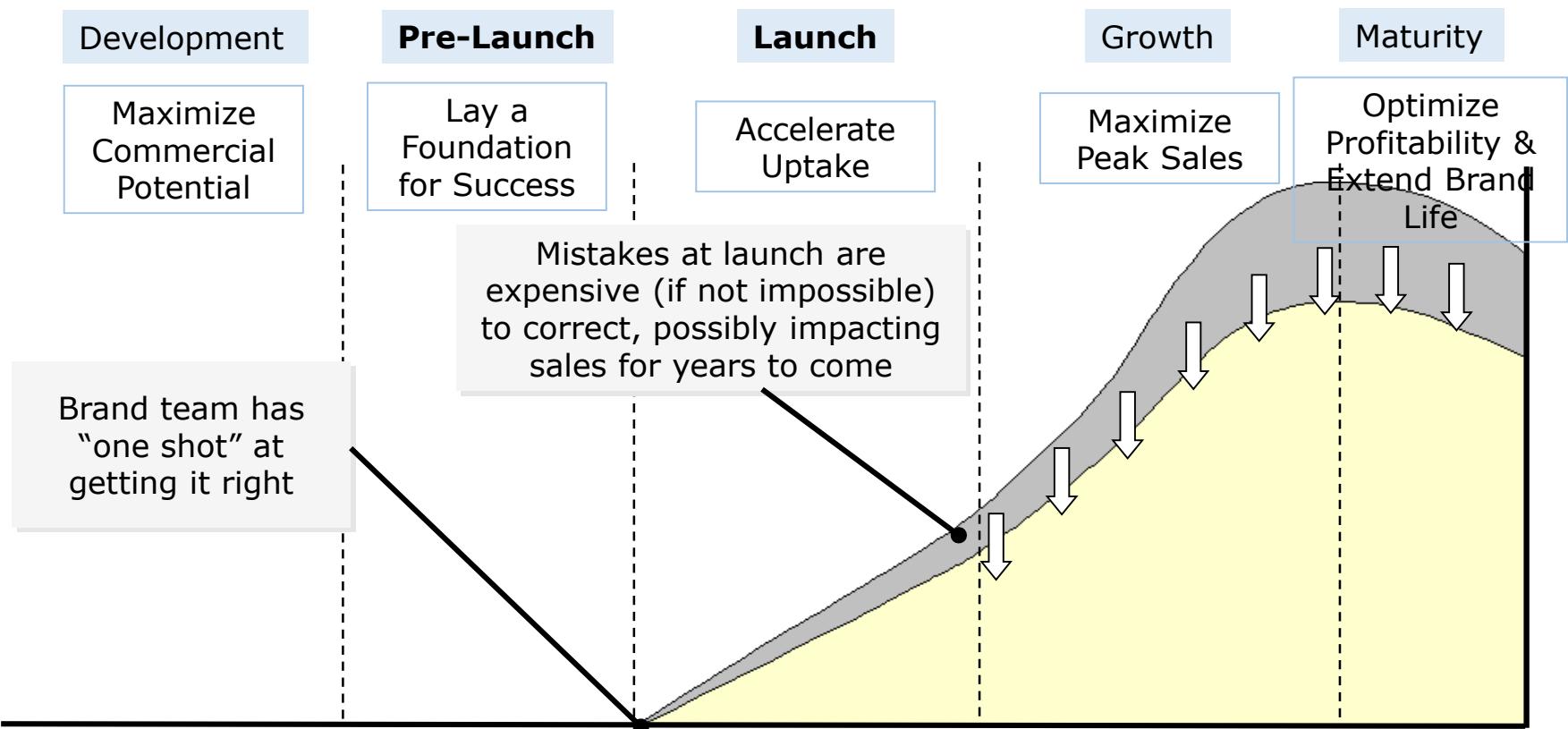


Contents

- Project Objectives and Methodology
- Data Preparation
- Modeling Results
- Promotion Optimization
- Product Launch Strategy



Success at launch will establish the trajectory for years to come



Best practice for new product launch are centered on four key factors



Market access best practice summary

1

Registration

- Independent of investment required, choose the China registration option which will lead to the **earliest launch and capture the largest market opportunity**

2

Patent

- Carefully selected KOL support during clinical trials and continued relationships with trial patients can be leveraged to **maximize marketing and commercial strategy during launch**
- Leverage patent and even the application/review process to increase the entry barrier of potential competitors

3

Pricing

- MNC companies' locally manufactured product has certain price range based on raw material cost and company global pricing strategy ...Within that range, product price is from best NPV scenario, which is based on market segment and customer segment analysis

4

Distributor & Hospital Listing

- Adopt win-win strategy and close cooperation to leverage full capabilities of distributors to ensure a successful hospital listing and product price control; Fully leverage commercial channel and motivate product sales team to accomplish the success of hospital listing

5

RDL & Guideline

- Focus Public Relation dept's effort on prioritized province/city, and fully leverage local government relations to get on RDL
- Develop full KOL list for guideline entry, approach them with relevant activities



Positioning and message best practice summary

-
- 1 Patient segmentation**
 - Understand the different patient segments which exist and prioritize them for product positioning
 - 2 Customer behaviour**
 - It's important to understand current customer behavior, as well as the opportunities which may exist to challenge conventional wisdom
 - 3 Competitive intelligence**
 - Take advantage of competitors' negative events, clinical trial data and other intelligence to effectively differentiate and promote the new product
 - 4 Product positioning**
 - Product positioning is unique and well aligned to patient segmentation, customer behavior and competitor intelligence analysis
 - 5 Key message**
 - Simple messaging should be used to first introduce the new product at launch, after 6 months specific messaging in support of product positioning and market strategy should be used
 - 6 KOL support**
 - Adopt relevant KOL management strategy according to specific needs, and consider their contribution as early as clinical trial hospital selection



Promotional effectiveness best practice summary

1

Customer segment & targeting

- Physicians are segmented based on their potential and accessibility, and early priority is given to those easy to approach physicians with higher numbers of new patients

2

Medical-marketing

- Leverage regulatory and medical events to effectively market the product among physicians and patients as well and create market demand accordingly
- An independent field team is established and made responsible for effective medical communication to physicians, especially KOLs

3

Medical communication

- An independent Medical Support Manager (MSM) team is built up responsible for efficient medical communication with physicians especially KOLs

4

Tracking

- SFE system tracks customers' behavior to adopt relevant marketing and sales strategy, and to guide sales forecast and target setting



Field force management best practice summary

-
- 1 Hospital Targeting**
 - Prioritize cities according to disposable income level, and target the top general hospitals and relevant specialty hospitals within top cities
 - 2 Sales Force Sizing and Allocation**
 - Sales team's initial sizing and allocation is determined by an SFE workload methodology, leveraging target hospital and physician number
 - Leverage a special business development sales team to identify sales opportunities in the broader market and recommend resource allocation accordingly
 - 3 Building the Sales Team**
 - A fully invested and independent sales team consisting of top industry performers, are on-boarded and trained in the early stages of launch
 - 4 Sales Target Setting and Allocation**
 - To get a **reasonable sales target**, balance between management expectation and market based calculation, and timely adjustment is necessary; and to get **reasonable sale target allocation**, bottom up feedback is critical
 - 5 Incentive Compensation**
 - Competitive salary and bonus scheme and other sales prizes are set to incentivize sales team
 - 6 Team Focus**
 - Before launch, sales team focuses on assessing customer behavior and hospital potential, and building up relations to prepare for the product launch; After launch, sales team focuses on beating sales target through excellent execution of marketing strategy
 - 7 Training**
 - Align sales team's behavior with product market strategy through sufficient training



New product launch timeline

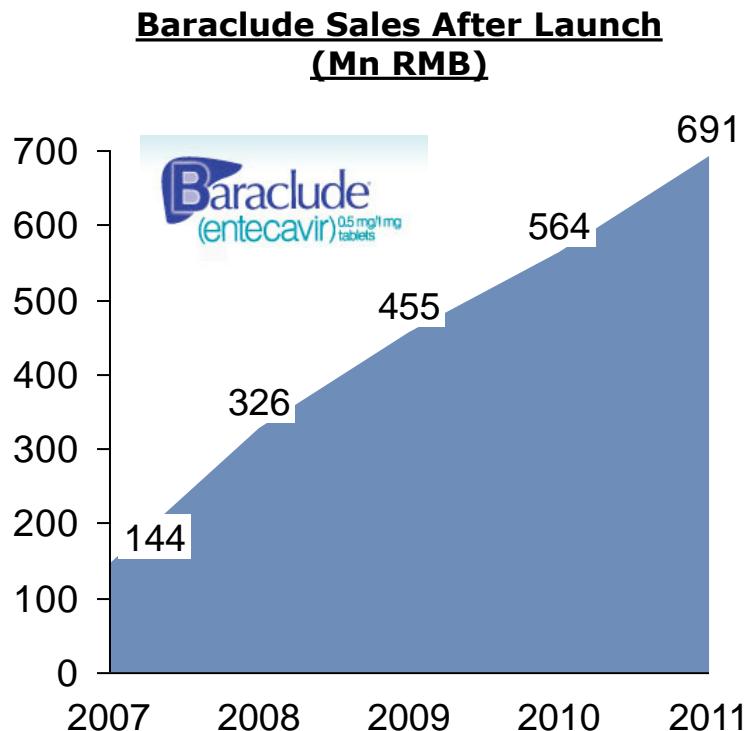


New product launch timeline (cont.)

<p>Product Introduction Period (3-12m post-marketing)</p>	<ul style="list-style-type: none">• Market Monitoring : awareness & Acceptance , market Penetration Analysis• Competitive Analysis : competitive Product Response , marketing Approach Investment Change• Monitoring Performance : defining KPI , effective Performance Monitoring	First and second hand data; qualitative and quantitative analysis
<p>Product Growth Period (1-2y post-marketing)</p>	<ul style="list-style-type: none">• Market development : analyzing regional differences , conversion no-recipient• Adjust performance : adjustment promotion plan & KPI• Risk emergency response : risk and contingency planning , provide market insights and guidance	First and second hand data; qualitative and quantitative analysis



Launch case - Focus on marketing lead to the successful launch of Baraclude



Source: IMS CHPA, Beds>100

Strategy & Execution

Marketing	+++
Field Force Management	+
Others	++

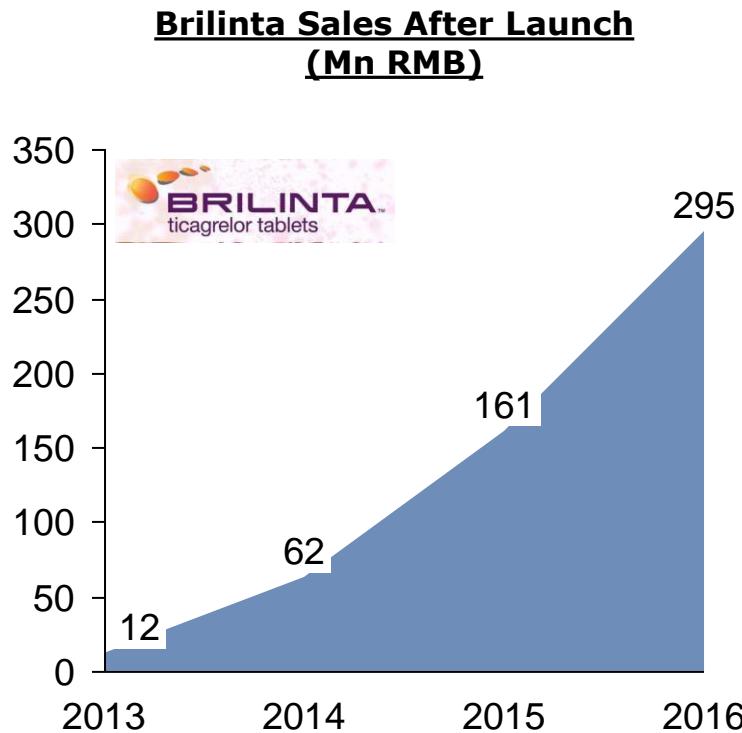
Sales & Marketing Investment (Mn RMB)

Year	Launch	Y1	Y2	Y3
Sales & Mktng	5	45	100	115
Sales&Mktng expense ratio% of Total Sales	NA	25%	18%	13%

- Baraclude was launched in 2007 in China. Its sales reached ~700Mn within 5 years after its launch
- Marketing and market access are the most important focus for investment during product launch



Launch case - Brilinta's launch investment focus was on field force and revenue does not break even with investment



Strategy & Execution

Marketing	++
Field Force Management	+++
Others	+

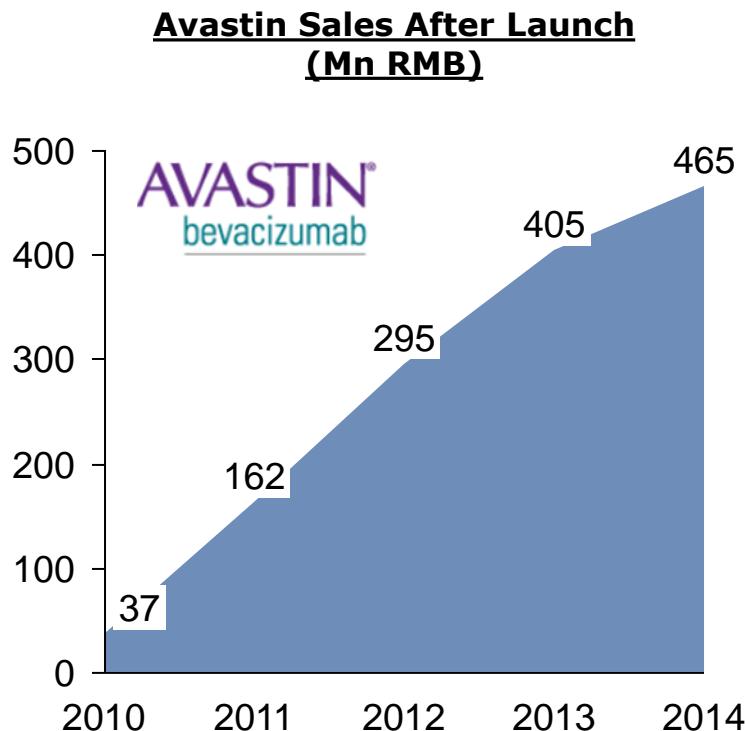
Sales & Marketing Investment (Mn RMB)

Year	Launch	Y1	Y2
Sales & Mkting	NA	138	204
Sales&Mkting expense ratio% of Total Sales	NA	221%	127%

- Brilinta was launched in 2013 in China. Its sales reached ~300Mn within 3 years after its launch
- Its launch investment focus was on field force management and revenue does not break even with promotion cost



Launch case - Marketing was the most important investment focus during product launch for Avastin



Source: IMS CHPA, Beds>100

Strategy & Execution

Marketing	+++
Field Force Management	++
Others	++

Sales & Marketing Investment (Mn RMB)

Year	Launch	Y1	Y2	Y3
Sales & Mkting	30	50	90	110
Sales&Mkting expense ratio% of Total Sales	NA	53%	20%	17%

- Avastin was launched in 2010 in China. Its sales reached ~465Mn within 5 years after its launch
- Marketing and medical are the most important focus for investment during product launch



Sales and marketing expense to total sales ratio is typically 20%-30% for MNCs

Sales & Marketing Expense Ratio among Total Sales

Company	2014	2015	2016
Pfizer	28.1%	30.3%	28.4%
Roche	18.2%	18.3%	18.1%
Novartis	23.7%	23.8%	24.7%
Merck	27.5%	26.1%	24.5%
GSK	35.9%	38.4%	33.6%
Sanofi	26.8%	27.5%	28%
BMS	41.4%	34.5%	27.7%
Lily	30.4%	32.7%	33.8%

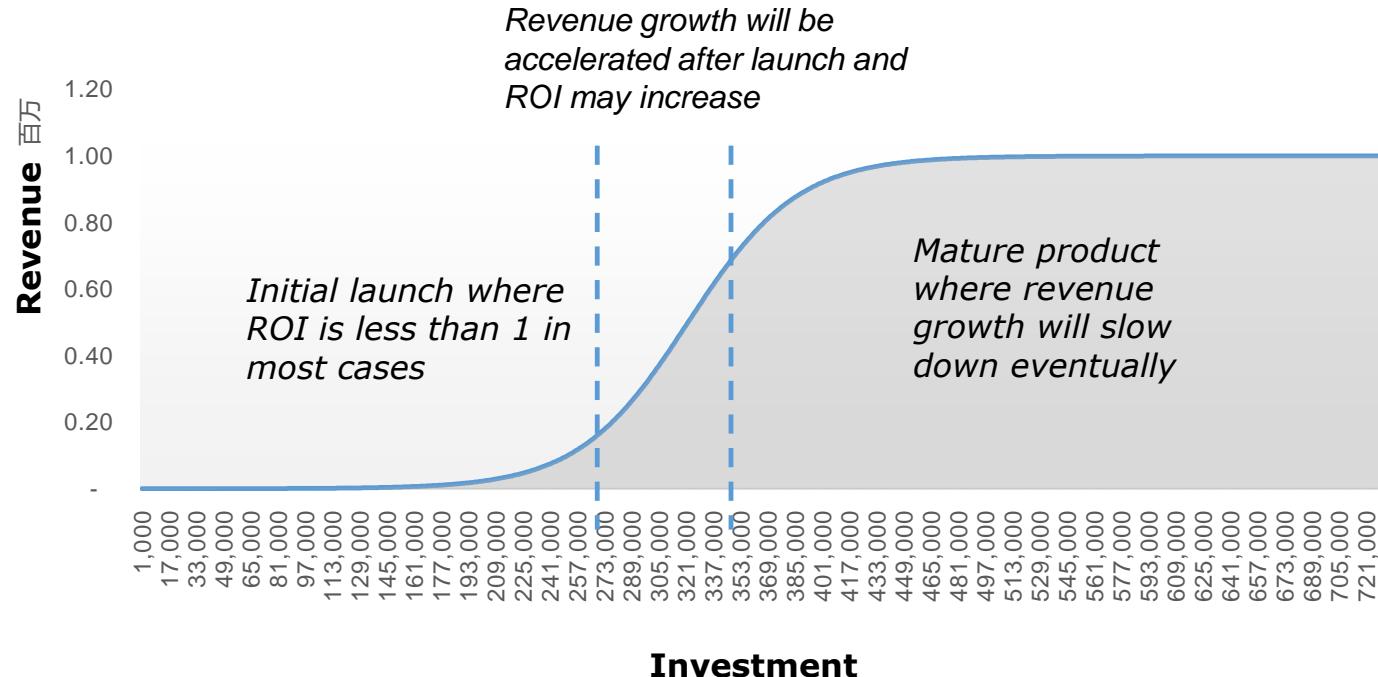
- Comparing sales and marketing expenses to sales is a technique most businesses use to determine if they are spending too much or too little on building their brands
- For most of the MNCs, sales and marketing expense to total sales is 20%-30%
- For new product, the communication cost and physician education cost will be higher. Thus, the ratio will be higher for new product

Source: Company annual report



Pharbers Technology

Promotion response curve for a product follows an S curve during its life cycle. Continuous increase on marketing investment is needed for new product



- Continuous increase on market investment is needed even though the ROI is low as it's in the brand image building stage. Once effective communication and education is conducted with physicians and consumers, a boost in revenue is expected
- For different level of revenue target, marketing investment needed can be calculated

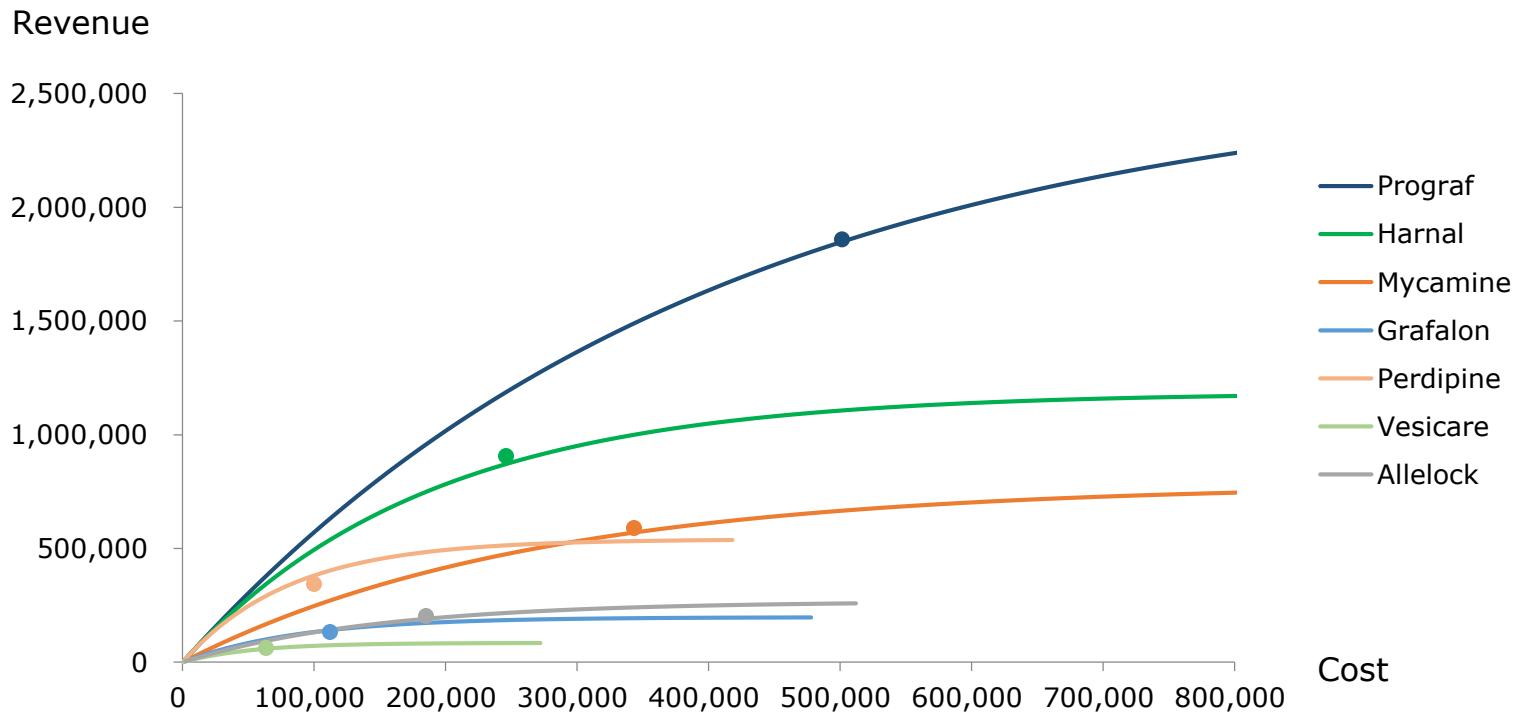


Appendix



Response curve for national meeting

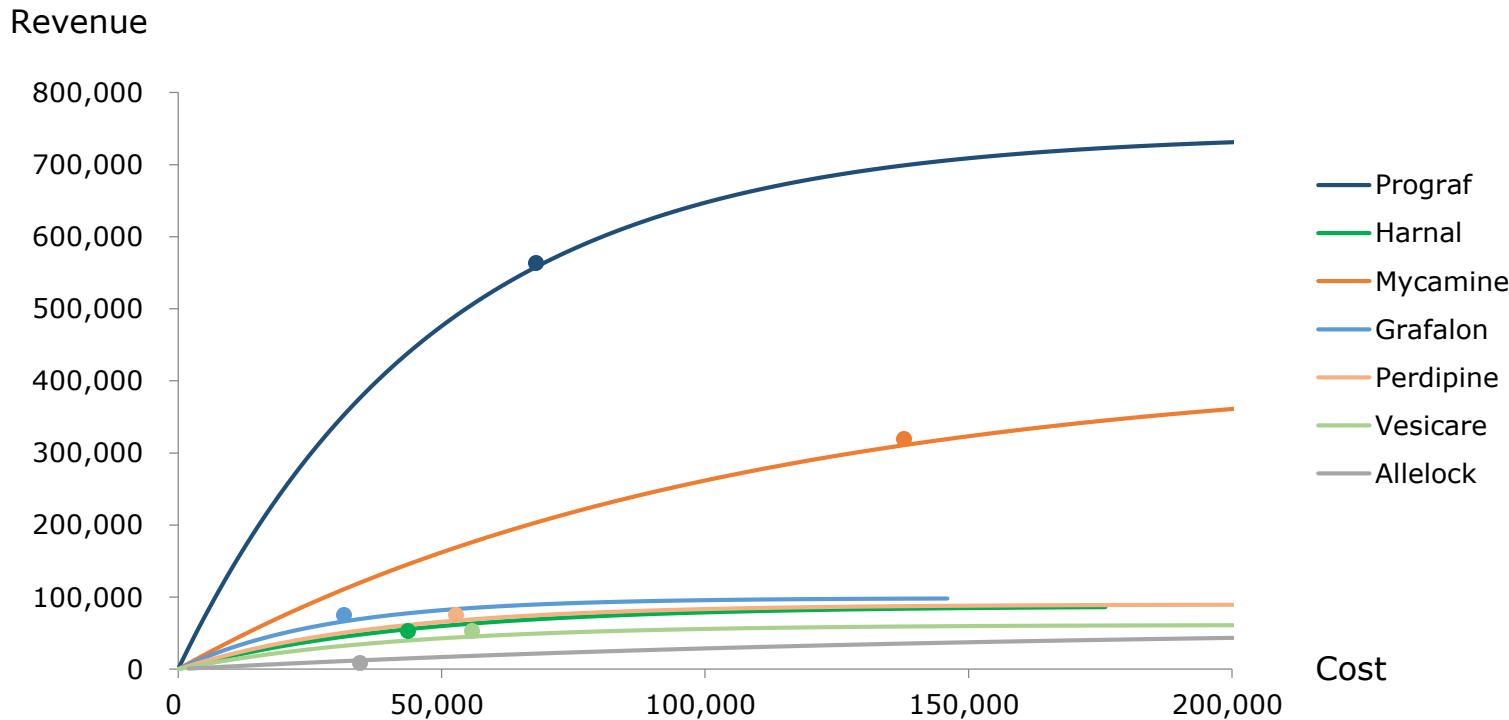
Response curve for National Meeting (Monthly mean)



	Prograf	Harnal	Mycamine	Grafalon	Perdipine	Vesicare	Allelock
Current monthly cost	513,196	245,684	333,082	119,875	104,544	68,497	185,095
Current monthly sales	1,891,678	866,605	571,920	144,766	394,543	62,472	98,335

Response curve for international meeting

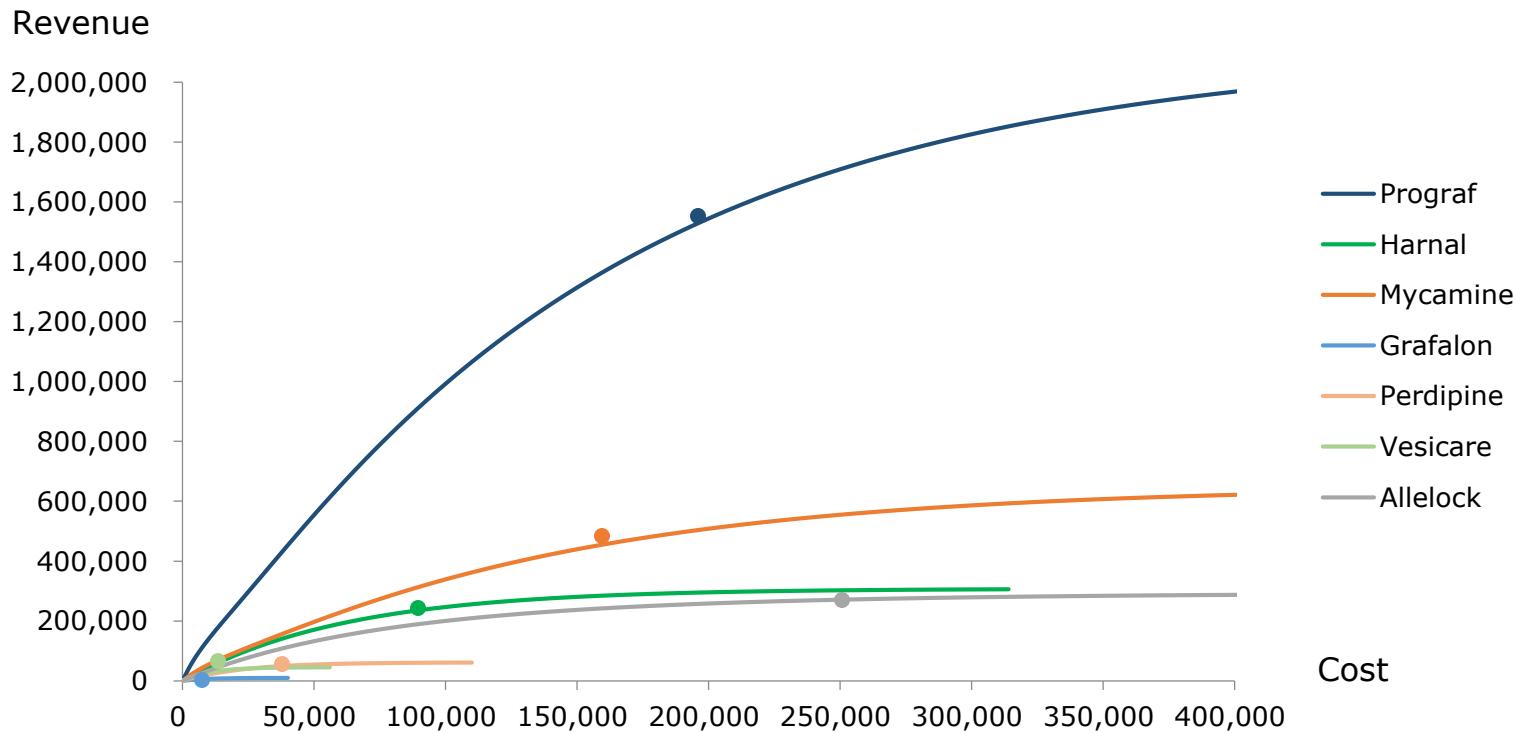
Response curve for International Meeting (Monthly mean)



	Prograf	Harnal	Mycamine	Grafalon	Perdipine	Vesicare	Allelock
Current monthly cost	60,743	44,320	134,866	36,974	56,792	55,385	38,762
Current monthly sales	542,772	63,877	307,803	72,171	65,487	44,810	20,593

Response curve for marketing others

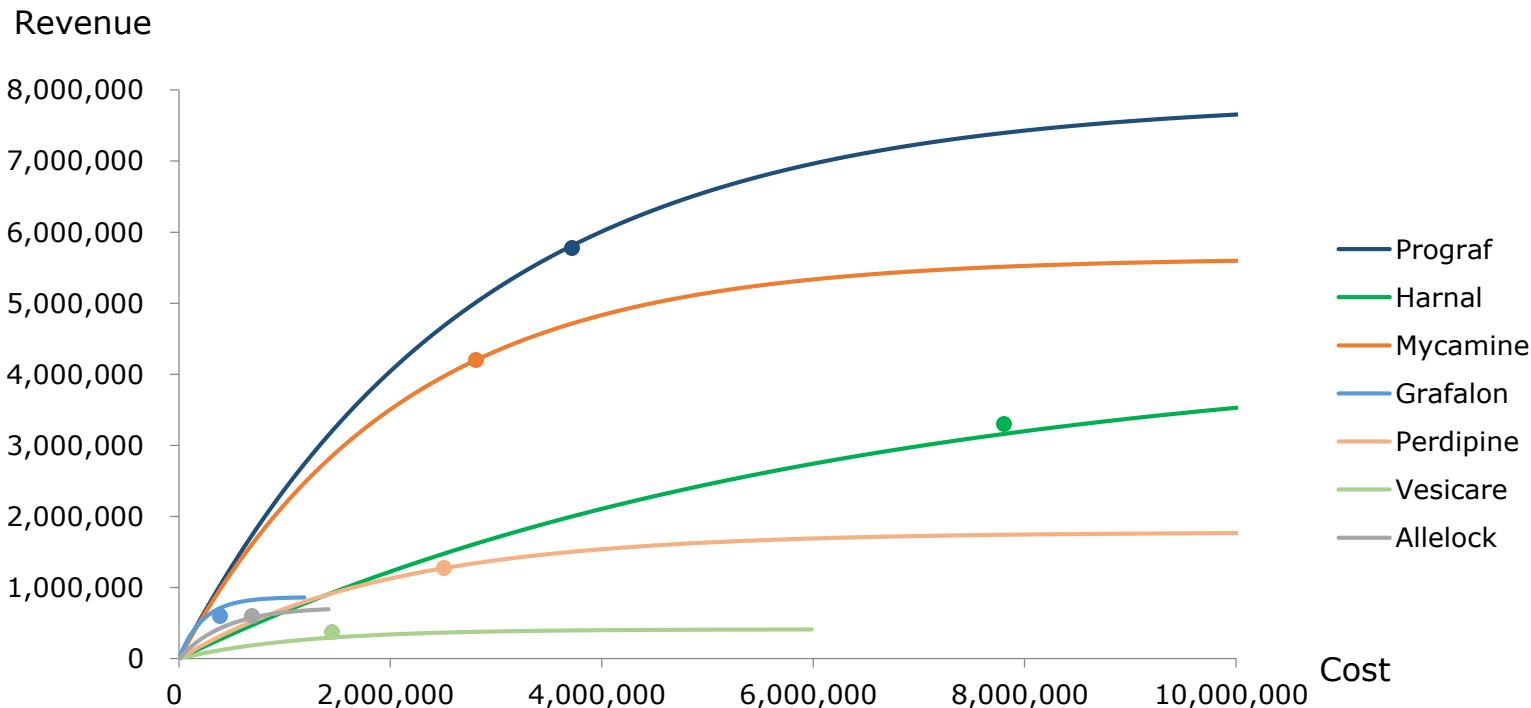
Response curve for marketing others (Monthly mean)



	Prograf	Harnal	Mycamine	Grafalon	Perdipine	Vesicare	Allelock
Current monthly cost	179,828	78,974	161,424	10,355	43,622	14,237	251,376
Current monthly sales	1,561,032	225,015	477,410	7,519	41,690	32,854	213,819

Response curve for call

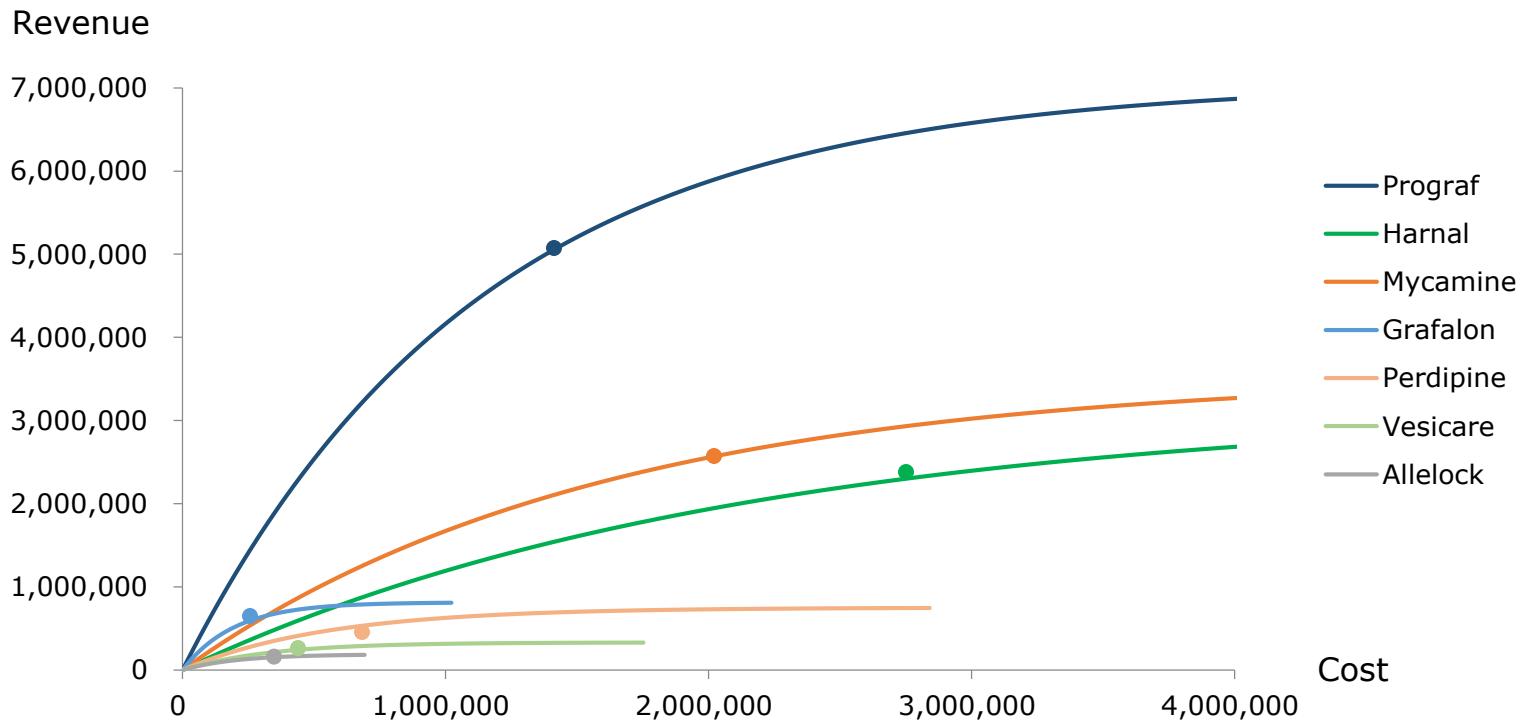
Response curve for call (Monthly mean)



	Prograf	Harnal	Mycamine	Grafalon	Perdipine	Vesicare	Allelock
Current monthly cost	3,543,292	7,940,209	2,691,320	296,692	2,590,570	1,496,657	618,382
Current monthly sales	5,744,887	3,194,627	4,119,302	632,045	1,298,453	301,758	528,968

Response curve for department meeting

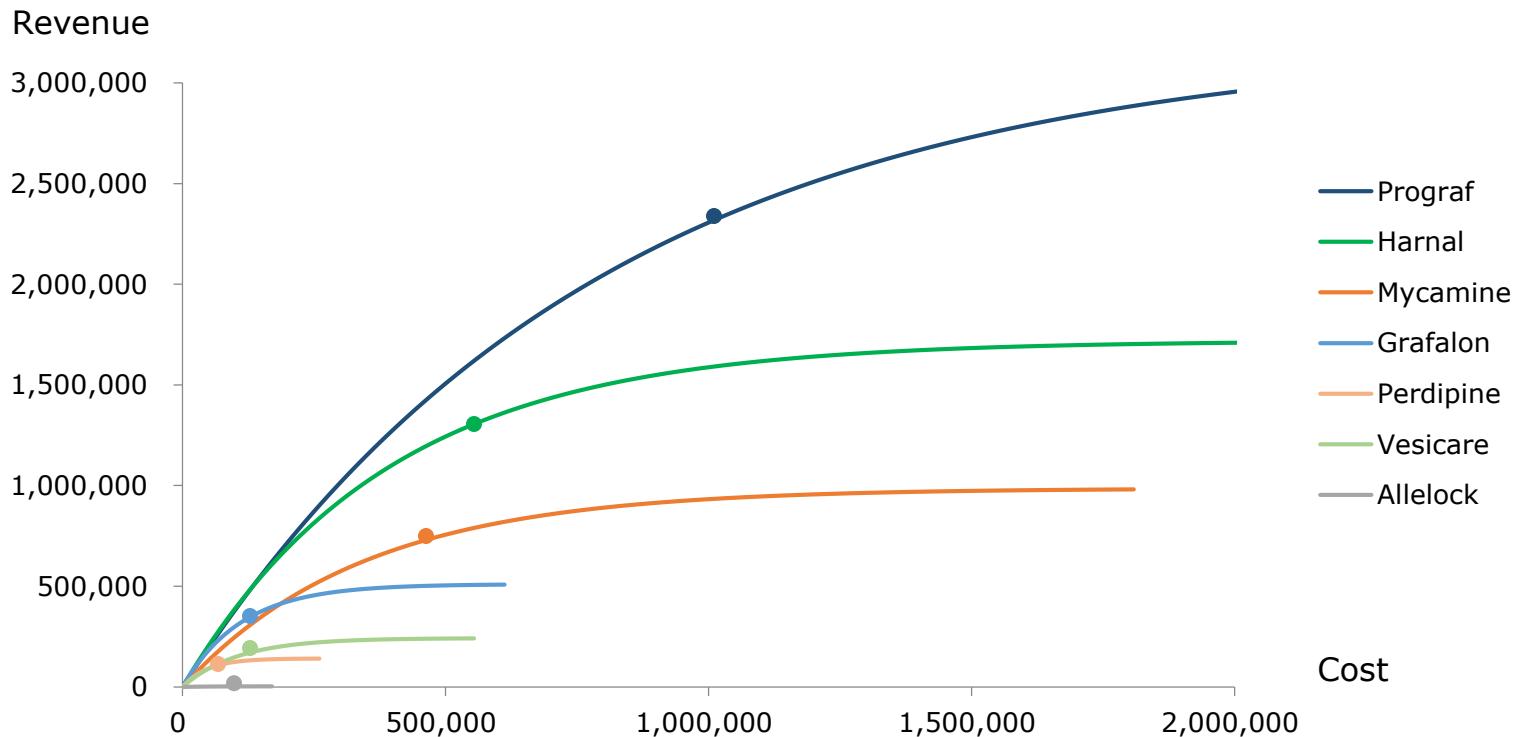
Response curve for department Meeting (Monthly mean)



	Prograf	Harnal	Mycamine	Grafalon	Perdipine	Vesicare	Allelock
Current monthly cost	1,458,203	2,732,837	2,040,724	255,649	710,268	438,330	302,717
Current monthly sales	5,161,944	2,304,996	2,589,376	593,357	547,443	241,486	137,442

Response curve for large meeting

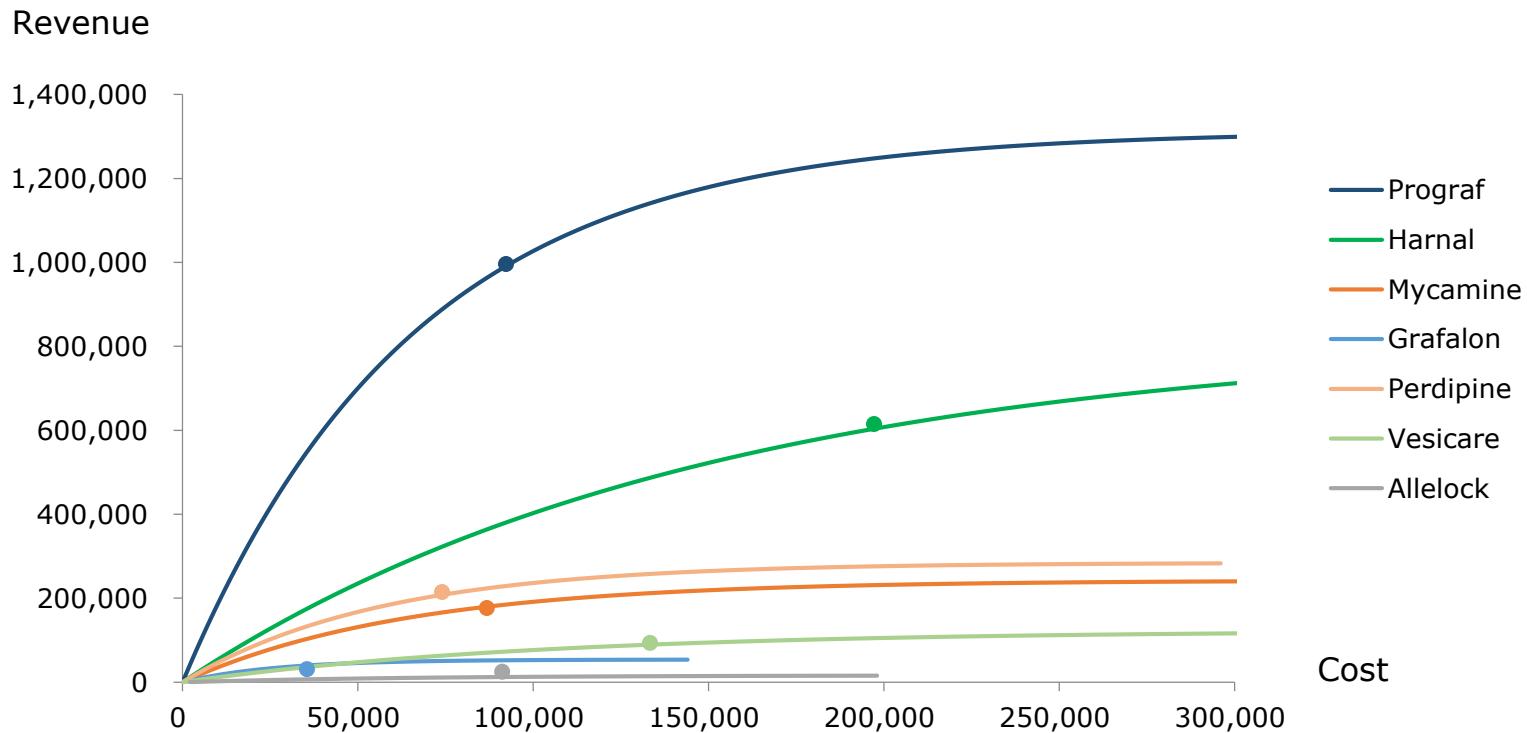
Response curve for large Meeting (Monthly mean)



	Prograf	Harnal	Mycamine	Grafalon	Perdipine	Vesicare	Allelock
Current monthly cost	1,059,154	521,571	452,070	153,201	65,424	138,688	74,828
Current monthly sales	2,344,173	1,255,518	720,114	372,548	103,094	176,913	2,206

Response curve for training

Response curve for training (Monthly mean)



	Prograf	Harnal	Mycamine	Grafalon	Perdipine	Vesicare	Allelock
Current monthly cost	87,450	197,166	84,750	36,497	74,492	135,709	86,674
Current monthly sales	958,542	598,483	176,852	39,296	207,564	89,536	11,571

Response curve for sales others

Response curve for sales others (Monthly mean)

Revenue

5,000,000

4,500,000

4,000,000

3,500,000

3,000,000

2,500,000

2,000,000

1,500,000

1,000,000

500,000

0

- Prograf
- Harnal
- Mycamine
- Grafalon
- Perdipine
- Vesicare
- Allelock

Cost

0

500,000

1,000,000

1,500,000

2,000,000

	Prograf	Harnal	Mycamine	Grafalon	Perdipine	Vesicare	Allelock
Current monthly cost	1,300,368	1,043,542	786,817	71,232	317,920	116,403	227,261
Current monthly sales	4,158,628	2,152,705	837,252	107,346	512,678	76,529	127,652

