Telling Your Story With Numbers: Building a Fundable Financial Model for Your Startup

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Lecturer, Stanford Graduate School of Business

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Founder & President

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IP Valuation & Strategy Lecturer

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Chair of the High Tech Sector

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World Leading IP Strategist: 2013-2018

- **Co-founder, CFO and Advisor** to startups, accelerators and funds in the US, Europe and Israel, including: Stanford Venture Studio, The HUB Trieste, Astia Angel Fund
- Conference speaker, author and blogger on topics related to valuations, funding and IP strategy.

Outline

- Funding & The Cost of Growth
- Selecting a Business/Financial Model
- Financial Modeling Fundamentals
- Common Financial Modeling Mistakes to Avoid
- Questions?

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Funding & The Cost of Growth

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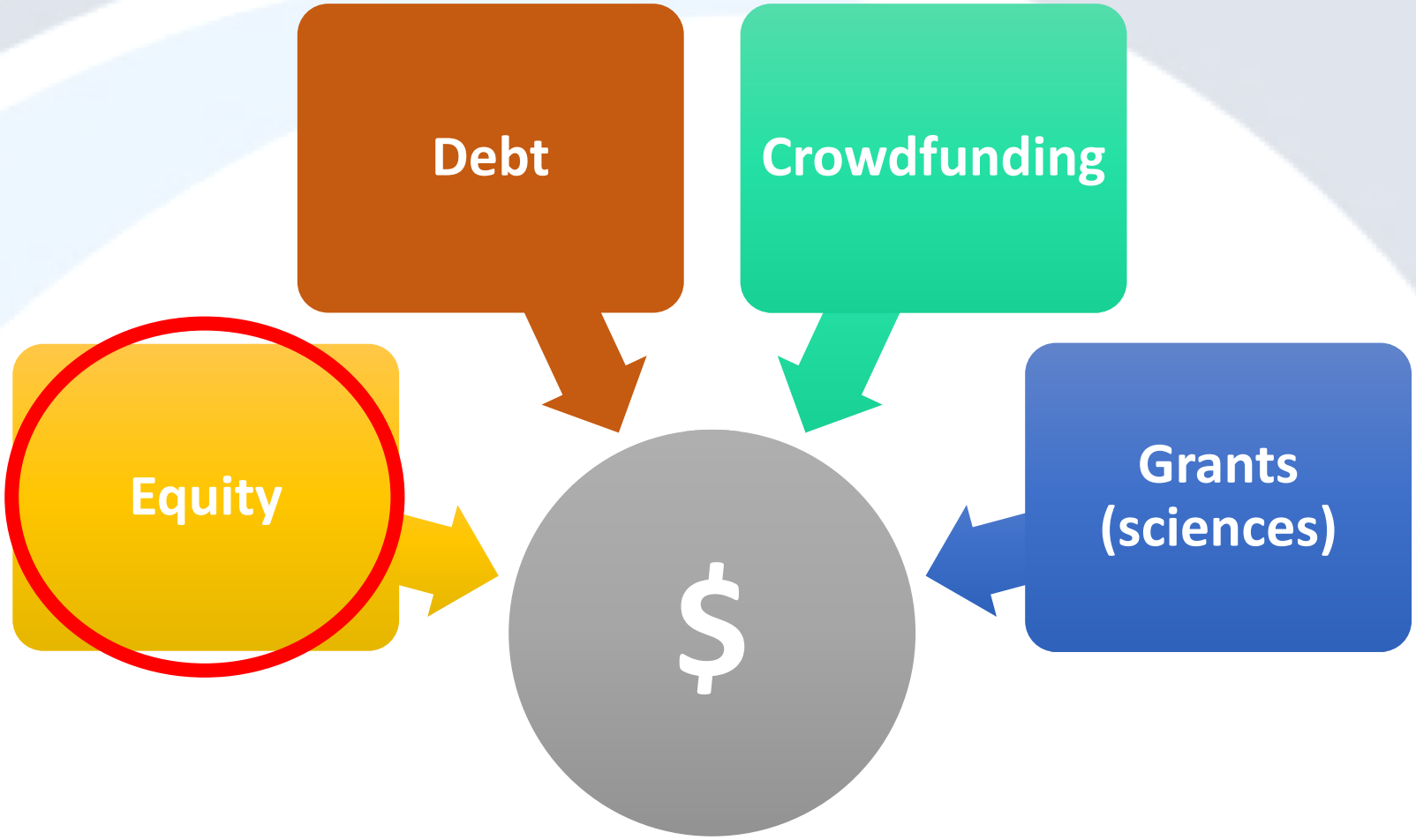
Sources of Startup Funding



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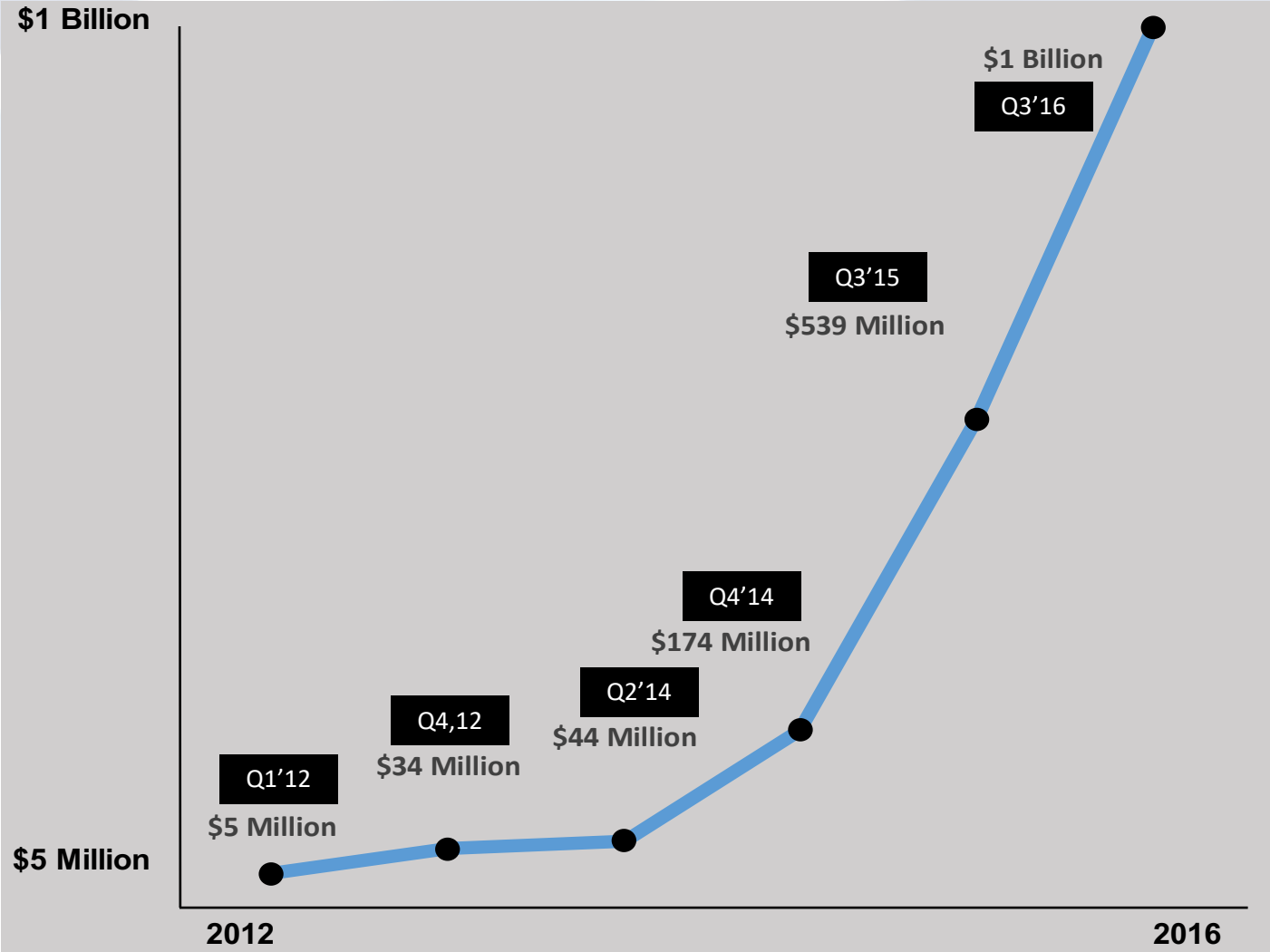
Guess the Company?



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Answer: Dollar Shave Club

FORTUNE | Finance

VENTURE CAPITAL

Unilever Buys Dollar Shave Club for $1 Billion

Dan Primack
Jul 19, 2016

Unilever announced on Tuesday evening that it is getting into the razor business, by agreeing to acquire Dollar Shave Club.

No financial terms were disclosed, but multiple sources close to the deal tells *Fortune* that Unilver (UK) is paying $1 billion in cash for the Santa Monica, Calif.-based business. That same source says that Unilver approached Dollar Shave Club about the acquisition.

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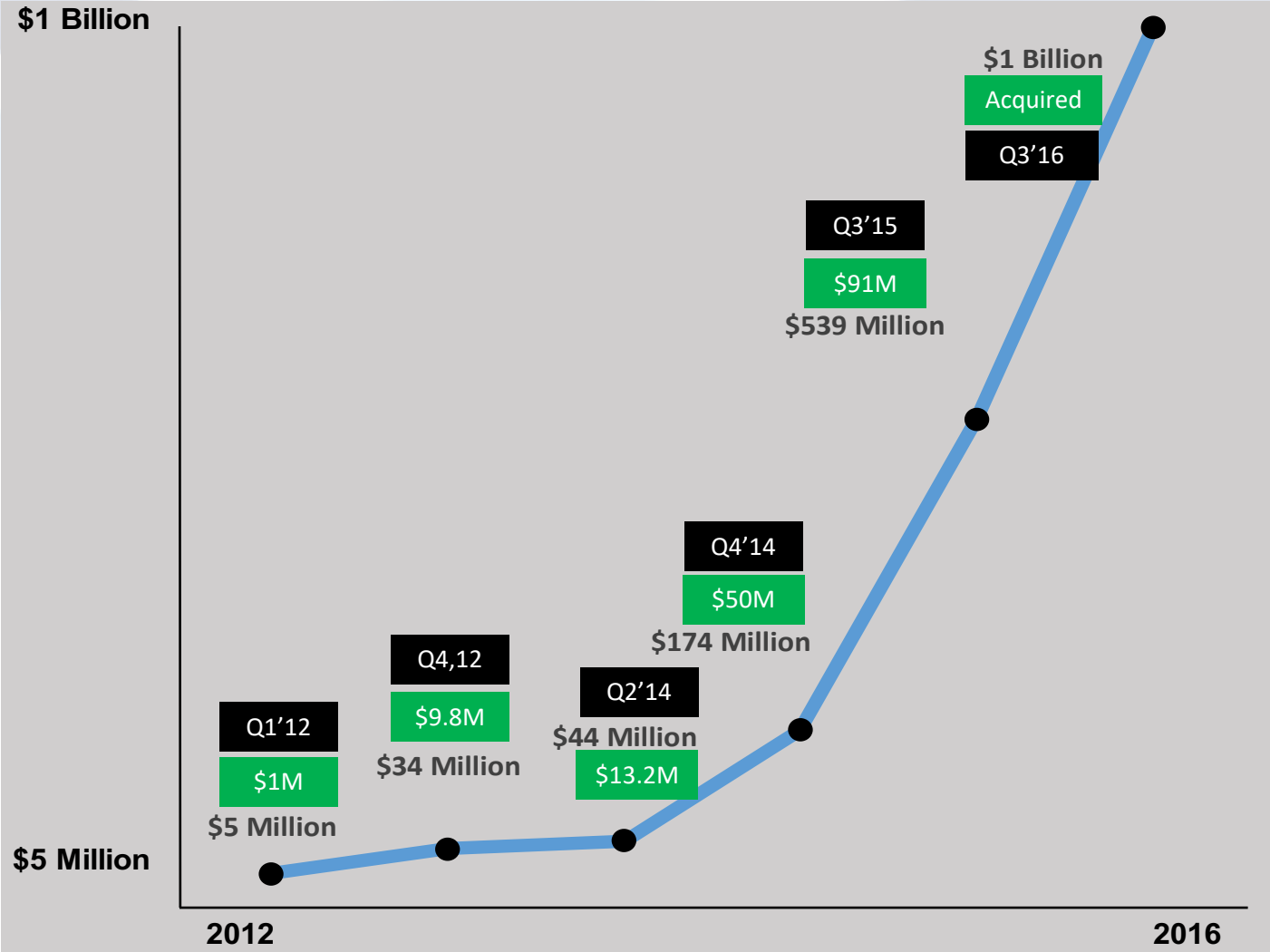
The Cost of Growth… $165M in Funding!



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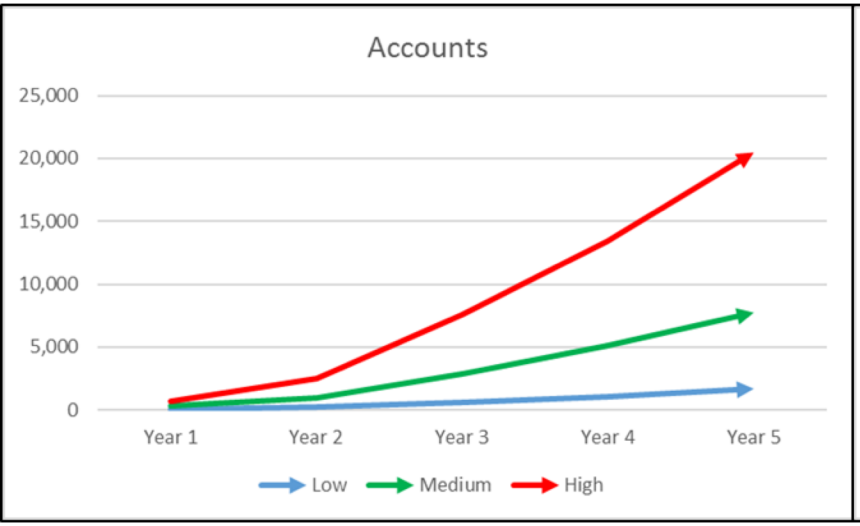
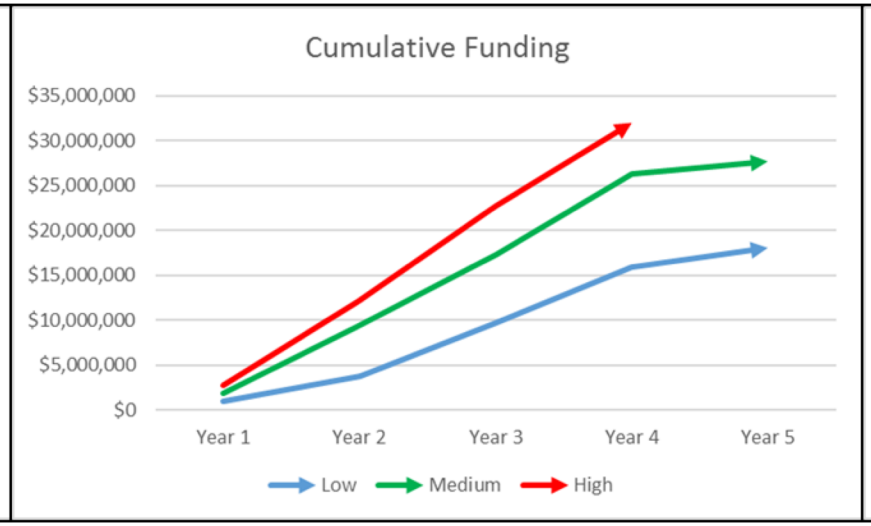
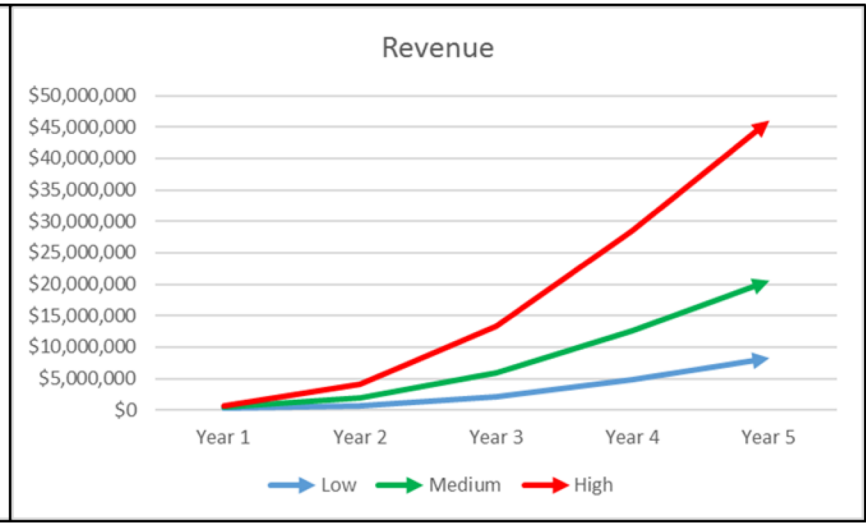
Financial Model Scenarios: The Cost of Growth

Growth	Accounts		Revenue		Funding		Ending Valuation
	Year 1	Year 5	Year 1	Year 5	Year 1	Year 5 (Cum.)	Year 5
Low	99	1,694	$ 235,113	$ 8,273,792	$ 1,001,577	$ 18,059,029	$ 49,642,752
Medium	329	7,792	$ 454,411	$ 20,510,103	$ 1,889,123	$ 27,682,940	$ 123,060,618
High	665	20,512	$ 680,276	$ 46,013,147	$ 2,817,655	$ 31,941,208	$ 276,078,882







Selecting a Business/Financial Model

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Goals for Financial Modeling

1. Manage Investor Expectations

- Understand growth curve over time
- True for all companies, from startups to public companies

2. Set Foundation for Funding Strategy

- Cash projections and Valuation trajectory set up your funding strategy
- Manage Dilution to a Minimum: *raising the right amount at the right time*

3. Create an Operating Budget

- Evaluate funding needs & funding sources
- Prioritize spending to optimize return on investment

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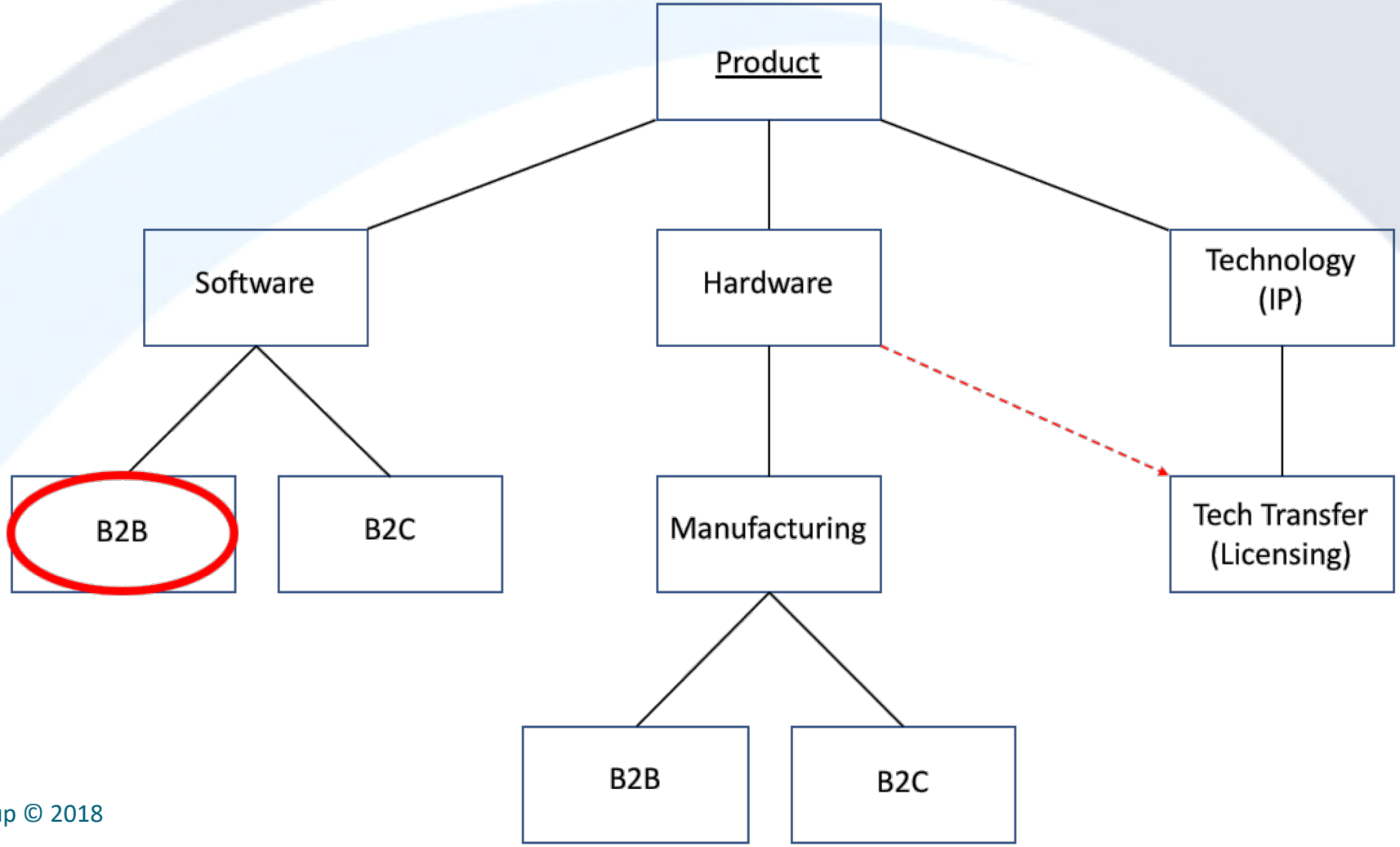
Business Model Selection



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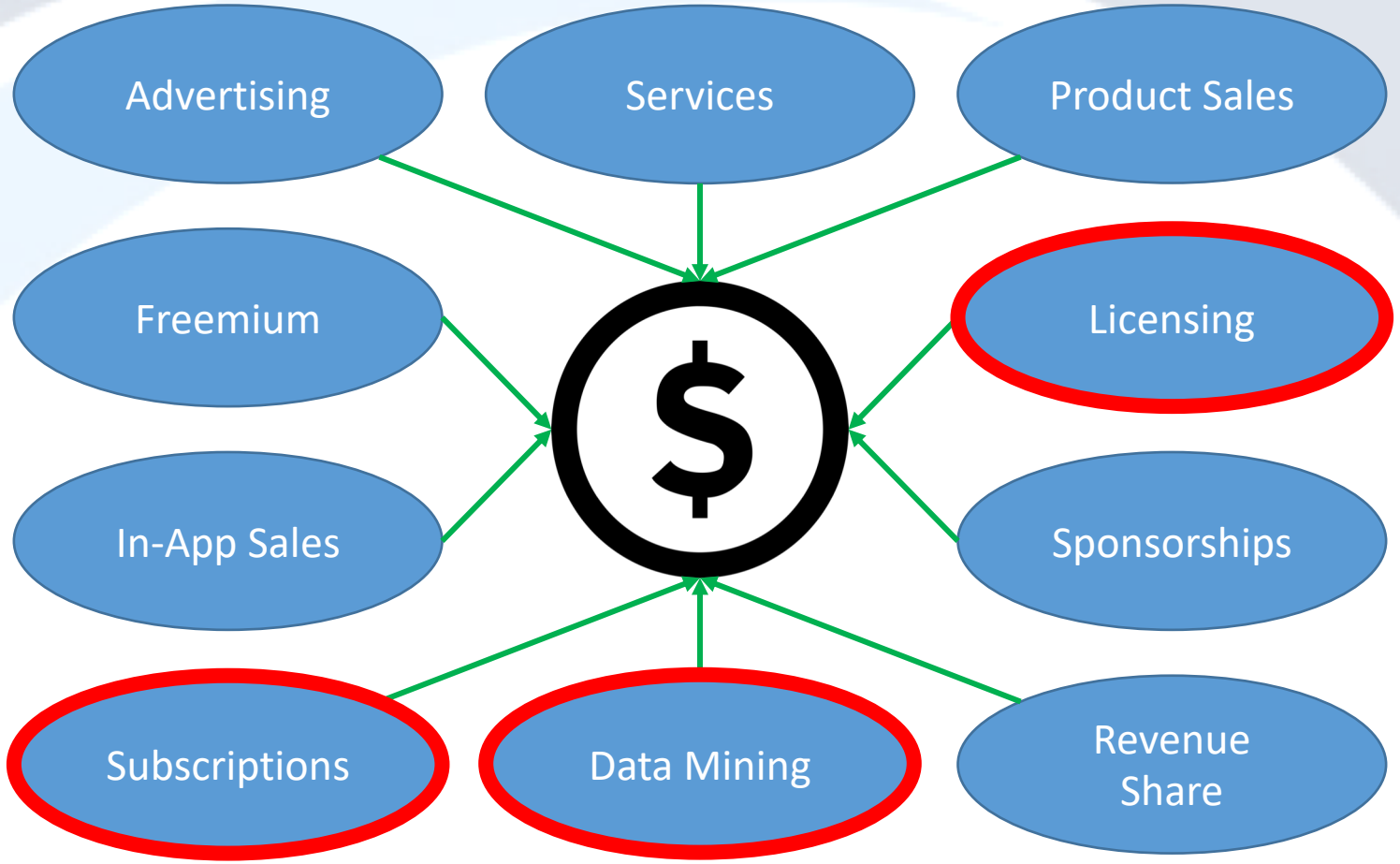
Common Sources of Revenues



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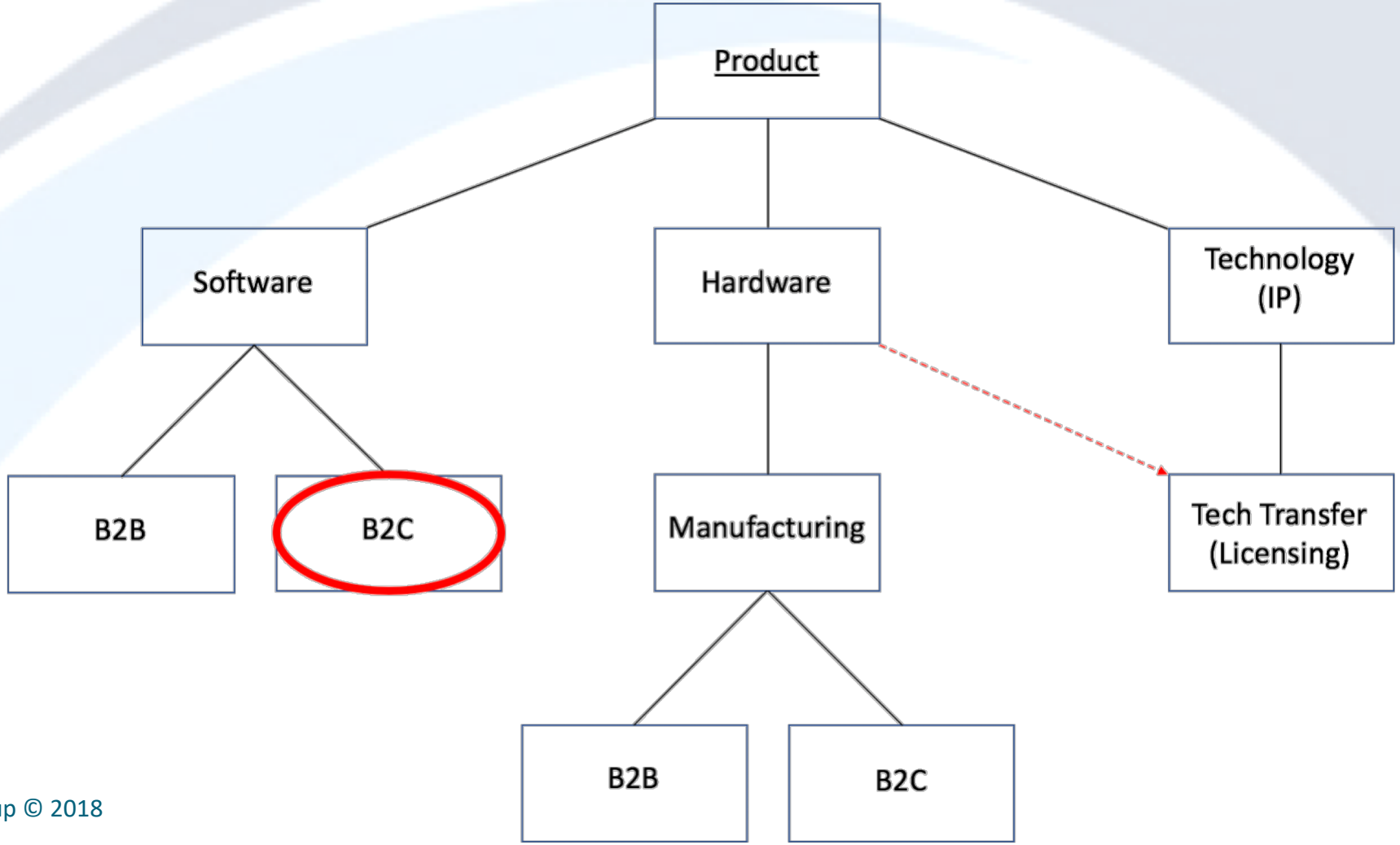
Business Model Selection



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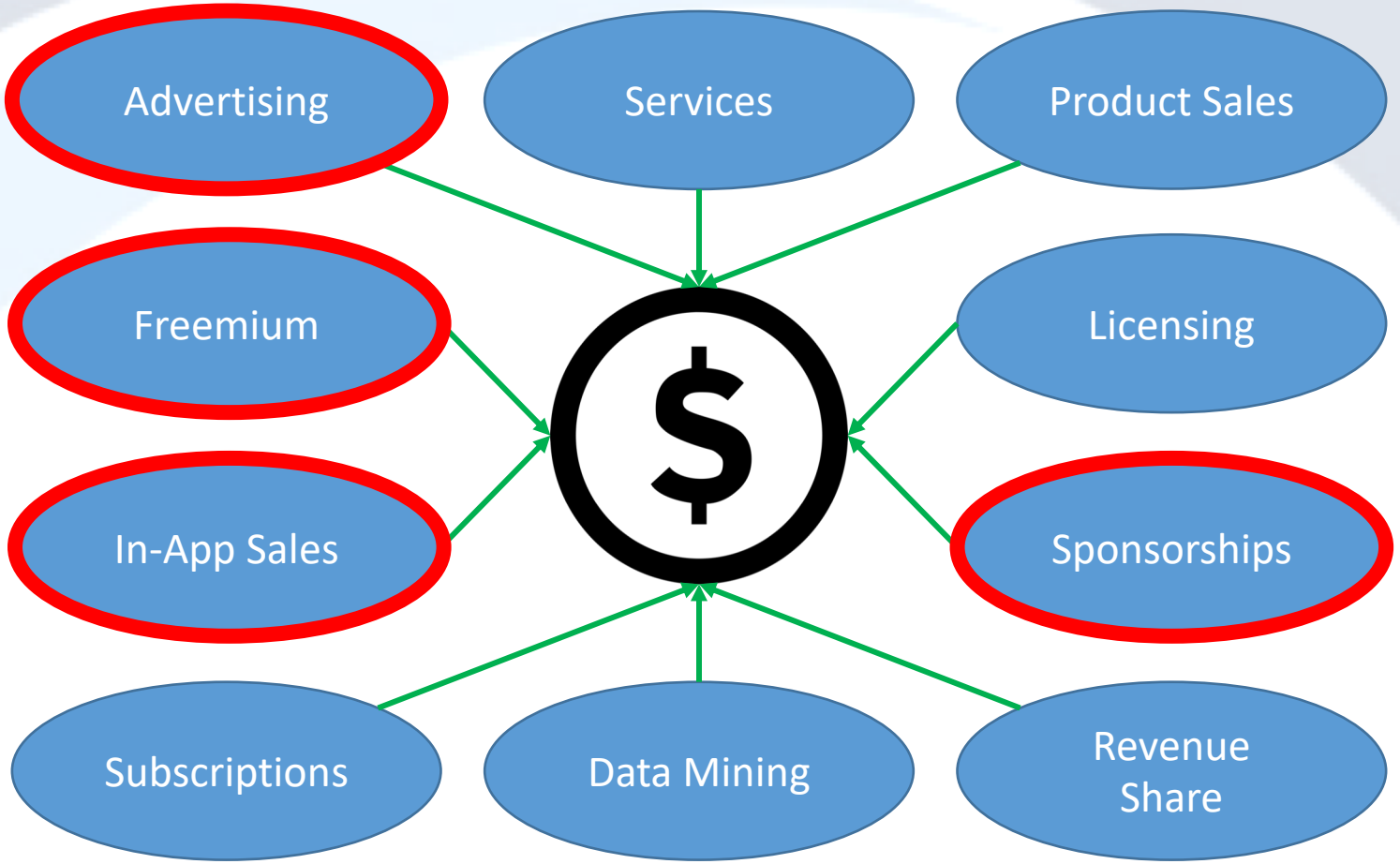
Common Sources of Revenues



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Financial Modeling Fundamentals

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Building a Balanced Financial Model

Financial Modeling Fundamentals:

Unit Economics:

Marginal cost and revenue from each unit/user

People Metrics:

People generate revenues and incur cost (#1 cost in most startups)

Industry Ratios:

Based on industry benchmarks by stage of development

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1. Unit Economics

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Unit Economics: Building from the Inside Out

- Identify your modeling unit: user, unit of product, subscriber
- Model the Unit Economics - *the incremental cost and revenue from adding one unit (user, product, subscriber):*
  - *Customer Acquisition Cost (CAC)*
  - *Customer Lifetime Value (LTV)*
  - *Annual/Monthly Recurring Revenue (ARR/MRR)*
  - *Churn (attrition rate)*

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Unit Economics Example: Software-as-a-Service (SaaS) Business Model

KEY SAAS METRICS:

CAC = Customer Acquisition Cost
LTV = Lifetime Value
MRR = Monthly Recurring Revenue
Churn = % leaving this month

CAC is defined as follows:

$$CAC = \frac{Sum\ of\ all\ Sales\ \&\ Marketing\ expenses}{No\ of\ new\ Customers\ Added}$$

$$Customer\ Lifetime = \frac{1}{Customer\ Churn\ Rate}$$

$$LTV = ARPA\ (Average\ MRR\ per\ Account)\ x\ Customer\ Lifetime$$

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Key SaaS Metrics: The "Holy" Ratios

Two key guidelines for SaaS startups

LTV	> 3x	CAC
Months to recover CAC	<	12 months

Simple Example: Managing Ratios

- CAC = $1,000
  - $100,000/year sales person, 100 customers a year
- MRR = $50 (monthly price)
- Monthly Churn = 2% (leaving every month)

<u>Ratios</u>:

- LTV = $50/2% = $2,500
- Months to recover CAC = 1,000/50 = 20 (too long – should be <12)
- LTV/CAC = $2,500/$1,000 = 2.5 (too low – should be >3)

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Balancing the Model: Improving SaaS Metrics

- Lower CAC:
  - Increasing the sales quota
  - Reducing the Salary
- Increase LTV:
  - Increasing MRR (charging more per customer)
  - Reducing Churn (key metric for SaaS companies)

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Possible Solution: Higher MRR?

- CAC = $1,000
  - $100,000/year sales person, 100 customers a year
- MRR = $50 (monthly price) ***>> Increase to $100***
- Monthly Churn = 2% (leaving every month)

<u>Ratios</u>:

- LTV = $50/2% = $2,500 ***>> NEW LTV = $5,000***
- Months to recover CAC = 1,000/50 = 20 (too long – should be <12)
  - ***Corrected: 1,000/100 = 10 (in the good range)***
- LTV/CAC = $2,500/$1,000 = 2.5 (too low – should be >3)
  - ***Corrected: 5,000/1,000 = 5 (in the good range)***

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Benefits of Modeling Unit Economics

- The SaaS metrics can inform the following decisions:
  - Pricing decisions
  - Sales quotas
  - Salaries
  - Go to market strategy
  - Budgeting for marketing
  - Competitive positioning
  - Hiring planning
  - Funding needs
  - And much more….

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2. People Metrics

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Cost Buildup: Org. Chart and Payroll

**Payroll is the largest cost item for a startup! **

- Build organizational chart for next two years by hiring date and function, for easy allocation to cost items
  - Use salary surveys, by regions
- Fully loaded: benefits, taxes, workers' comp insurance, healthcare, bonuses, raises
  - Employees v. contractors
  - Cash v. equity compensation

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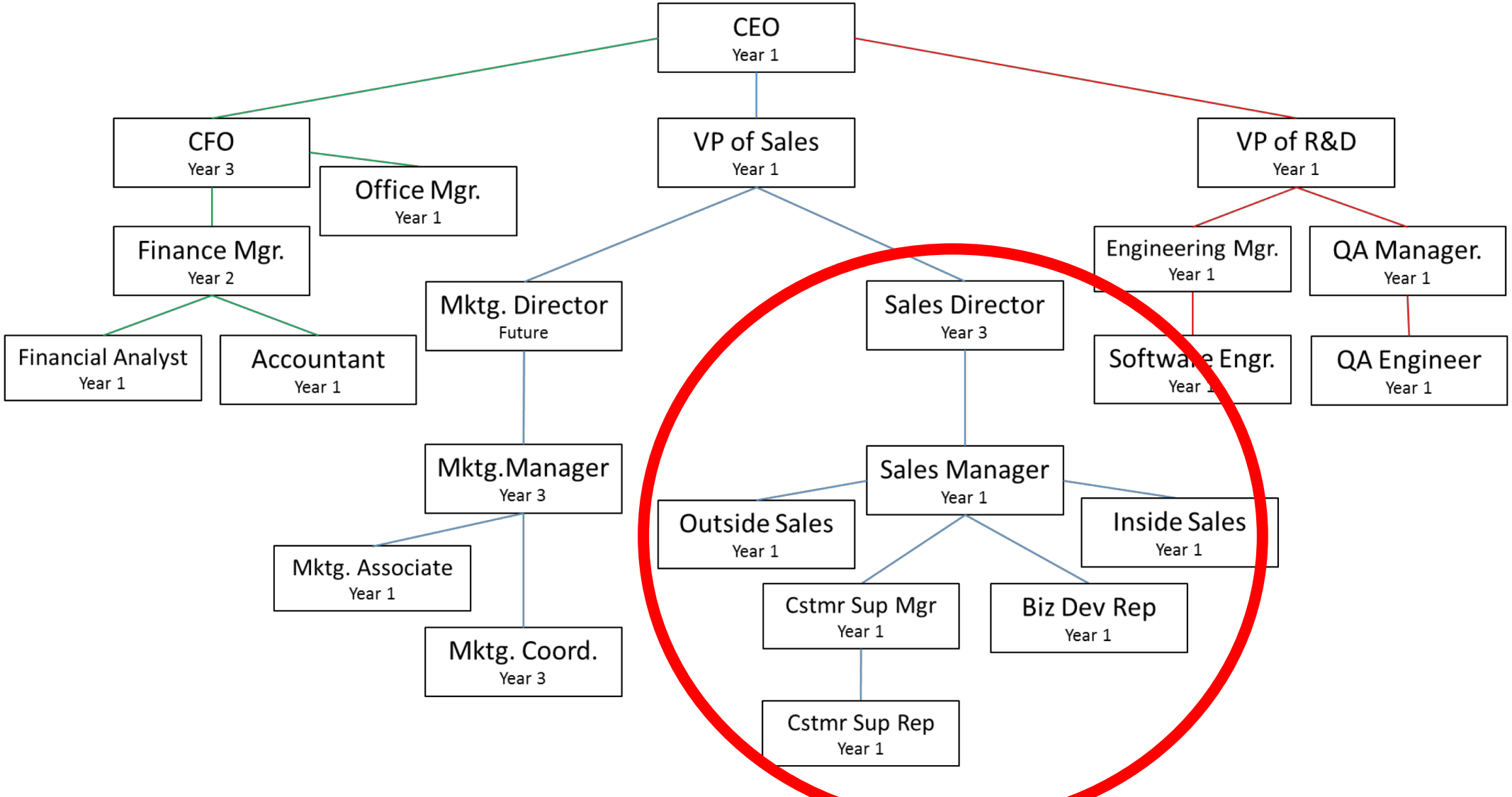
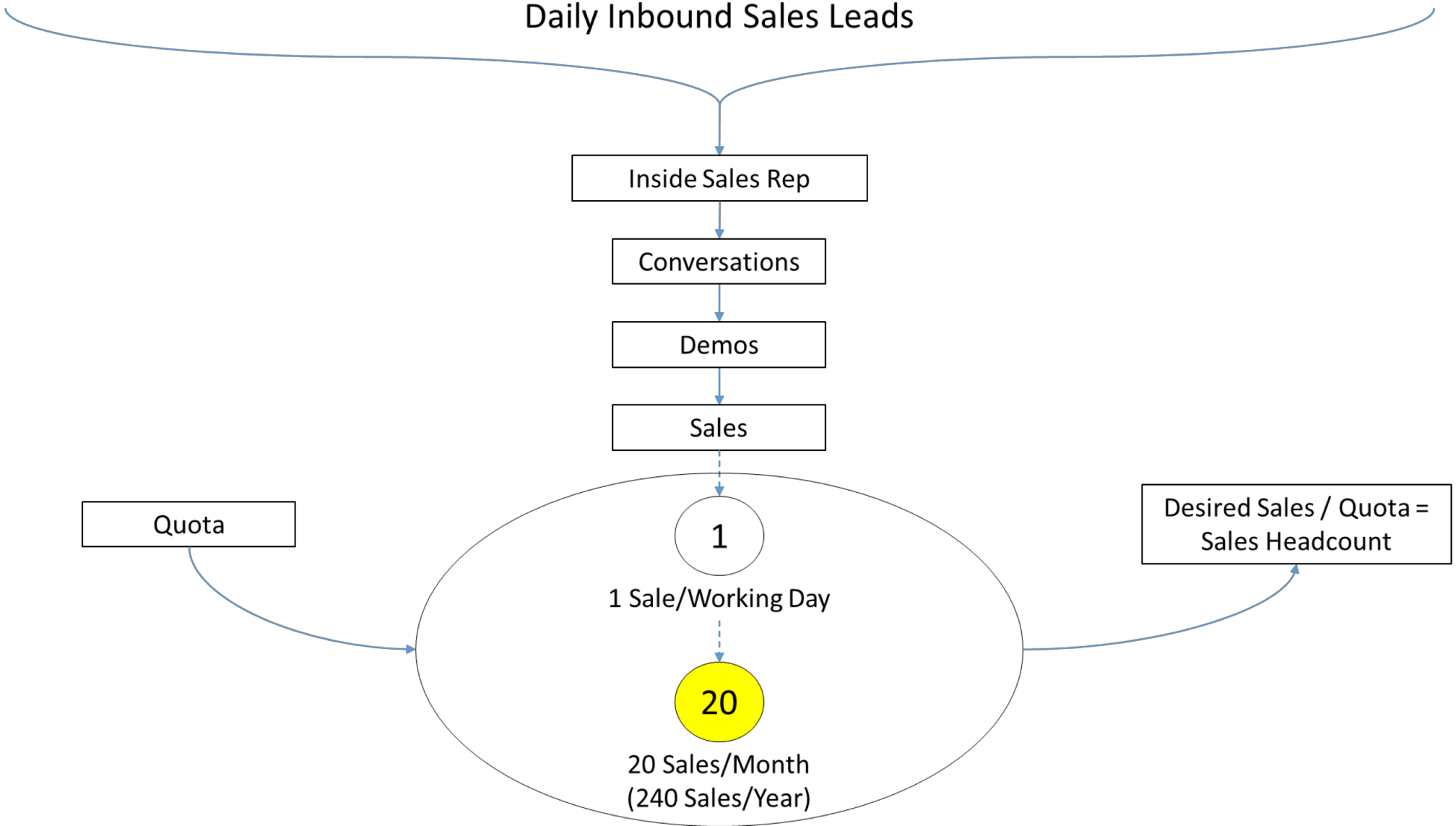
Workforce Planning: Sample Org Chart



Sales Force Buildup: The Sales Funnel



Determine Headcount Needs: Sales Force example

Revenue Target: $2,400,000

New Accounts Needed to Meet Target: **2,400**

Average Annual Revenue/Account: **$1,000**

Sales Quota = **240** New Accounts/Year

Support Quota = 1 support person/400 Accounts

>>Required Sales Headcount = **10 Inside Sales Reps**

>>Required Support Headcount = **6 Customer Support Reps**

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3. Industry Benchmark Ratios

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Functional Cost Buildup Example: SaaS Company

Operating Costs:

G&A

Salaries

Overhead:
Office Space
Software
Supplies
Etc.

S&M

Salaries

Overhead:
Advertising
Branding
CRM
Etc.

R&D

Salaries

Overhead:
Research Facility
Etc.

COGS

Direct Costs:

- Data Hosting & Storage Fees
- Credit Card Processing Fees
- Etc.

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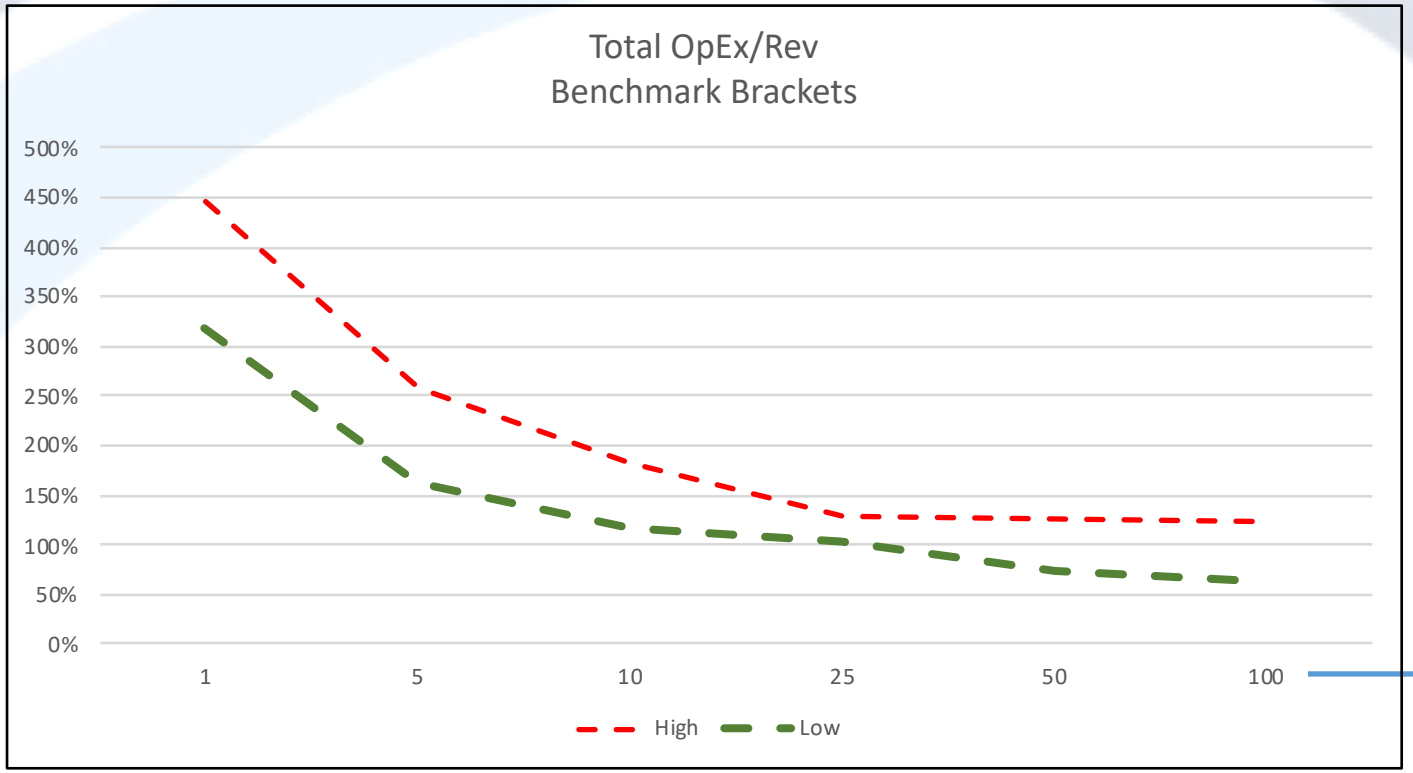
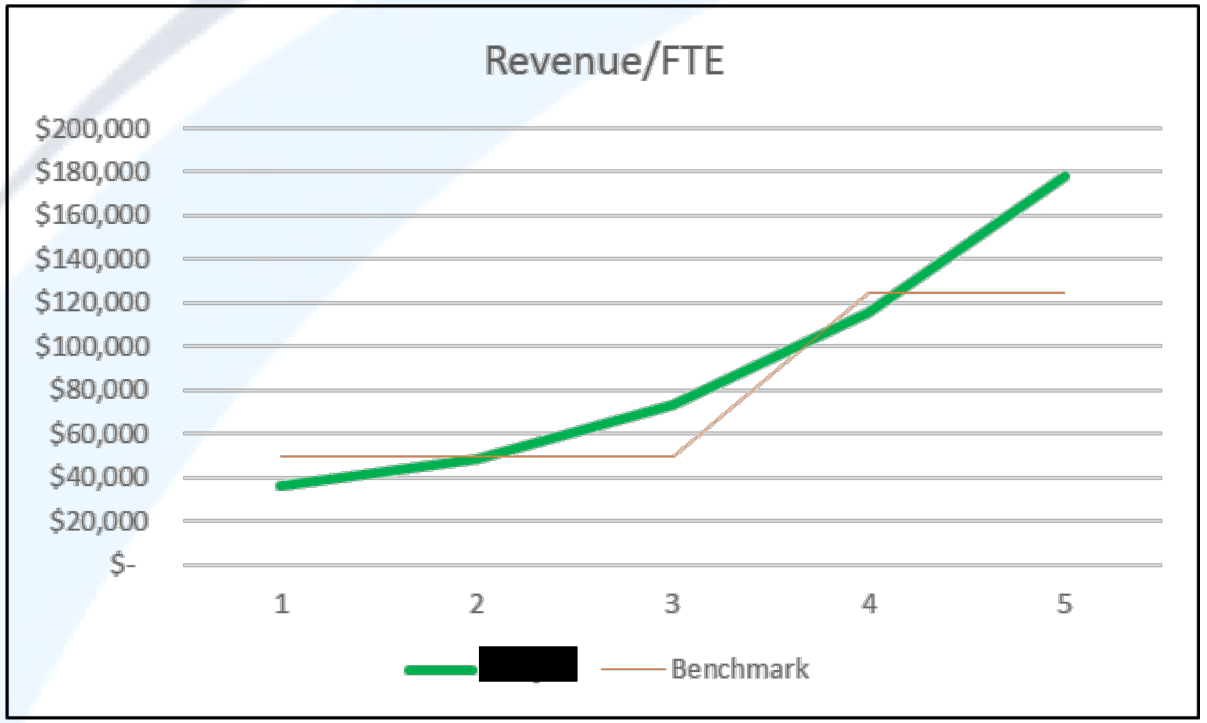
Expense Metrics Example: SaaS Industry

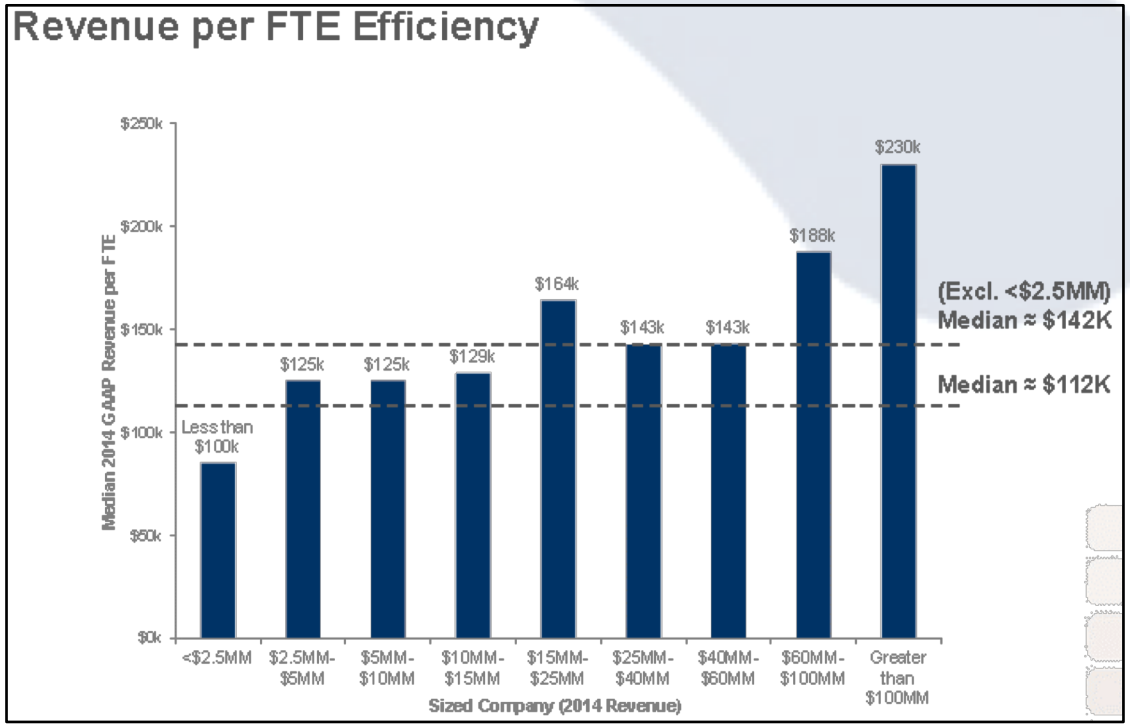


Company Revenue ($M)

Revenue Metrics Example: SaaS Industry

FTE (Full-Time Equivalent) Benchmarks





Source: Pacific Crest Securities (2015)

Common Financial Modeling Mistakes to Avoid…

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Common Financial Modeling Mistakes

1. Not enough people in the model
2. Not enough cost to support user growth
3. User Metrics are out of normal range

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Case Study: B2C Social Networking App

BlueSky, Inc. Financial Summary (in $)	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue					
Ad Revenue	22,500	350,000	2,500,000	25,365,000	137,580,000
User Access Fee per Month	800,000	300,000	100,000	36,000	-
Branded Content Channel Revenue	45,000	125,000	575,000	3,500,000	9,850,000
Freemium Services	36,000	100,000	350,000	750,000	1,500,000
Gross Revenue	903,500	875,000	3,525,000	29,651,000	148,930,000
Costs					
Building/Office Lease	36,000	60,000	60,000	96,000	96,000
Sales & Marketing	90,000	250,000	350,000	500,000	750,000
Third Party Technology	45,896	341,338	1,344,525	72,000	-
Legal Fees	43,200	26,500	120,000	155,000	165,000
General & Administration	12,000	36,000	48,000	75,000	95,000
Salary & Bonuses	12,008	425,008	635,000	1,780,000	2,890,000
Total Operating Costs	239,104	1,138,846	2,557,525	2,678,000	3,996,000

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Stress Test 1:
Are there Enough People in the Model?

Gross Revenue	903,500	875,000	3,525,000	29,651,000	148,930,000
Revenue per Employee Benchmark	50,000	50,000	125,000	145,000	230,000
Implied "Required" Employees	18	18	28	204	648
Salaries & Bonuses (your #s)	12,008	425,008	635,000	1,780,000	2,890,000
Implied Avg. Salary per Employee	665	24,286	22,518	8,705	4,463
"Typical" Avg. Salary	100,000	100,000	100,000	100,000	100,000
Salaries & Bonuses Needed	1,807,000	1,750,000	2,820,000	20,448,966	64,752,174

There are NOT ENOUGH PEOPLE in the Model:

Implied # of people needed in Year 5 = 648
Salaries for 648 people = $65M
BUT - Model only accounted for salaries of $2.9M

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Stress Test 2:
Is there Enough Cost to Support Growth?

User Base Summary (millions)	Year 1	Year 2	Year 3	Year 4	Year 5
Total Accounts at End of Year	3.5	8.2	15.75	150.52	365.25
Average Monthly Active Users (MAU)	1.75	5.33	11.81	127.94	328.73
Customer Acquisition Cost (CAC)	1,050,000	1,230,000	787,500	376,300	913,125
Customer Acquisition Cost (CAC) - Per User	0.3000	0.1500	0.0500	0.0025	0.0025

There is <u>NOT ENOUGH COST</u> to Support User Growth:

Year 1-5 Customer Acquisition Cost (CAC)= $0.30-$0.0025/User
Model Cumulative CAC over 5 year = $4.36M

Benchmark Cost per Install (CPI) iOS = $1.88/User
Cumulative CAC over 365M users= *AT LEAST* $686.2M

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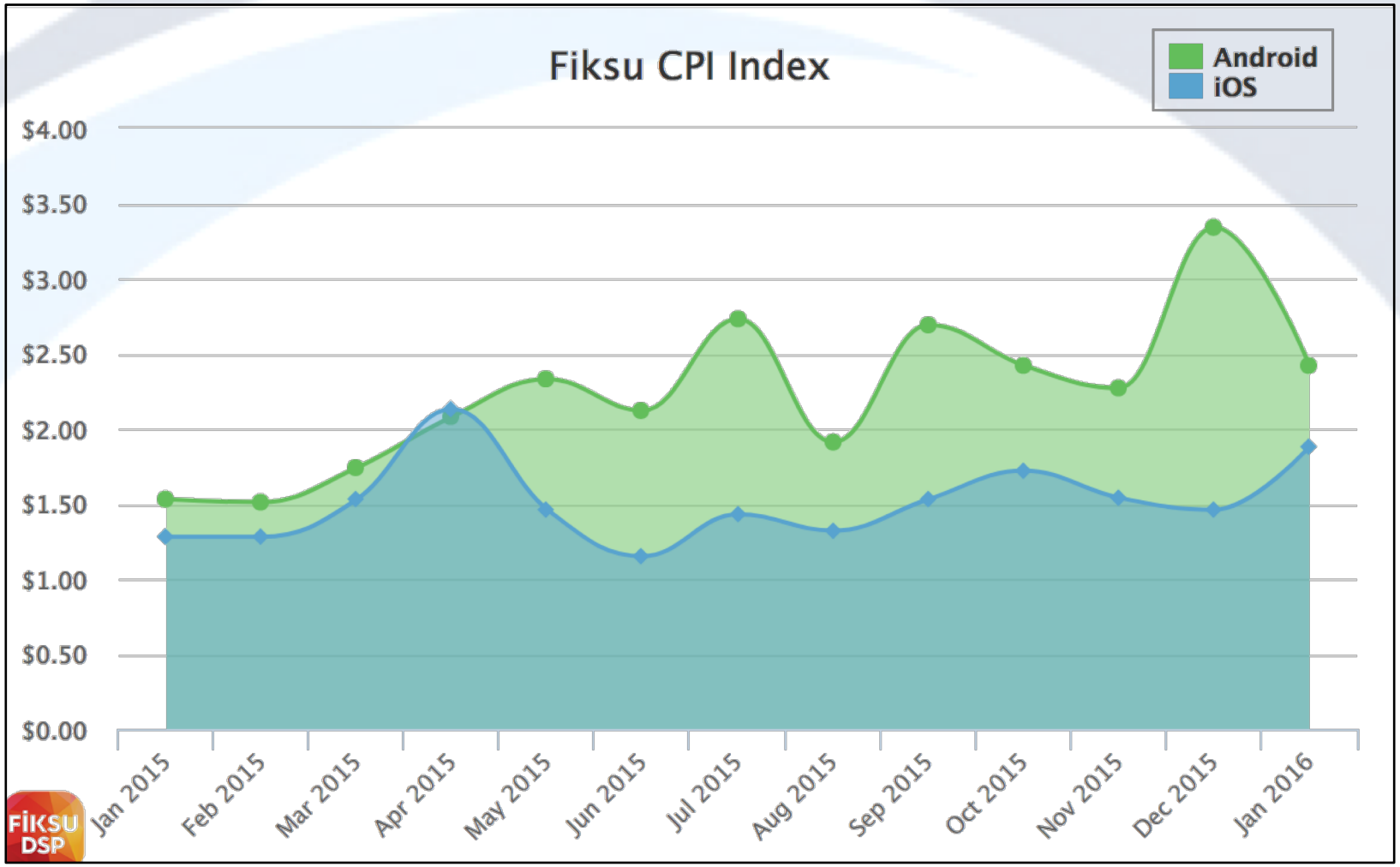
Fiksu Cost Per Install (CPI) Index: Jan 2016



Stress Test 3:
Are User Metrics Within Normal Range?

User Base Summary (millions)	Year 1	Year 2	Year 3	Year 4	Year 5
Total Accounts at End of Year	3.5	8.2	15.75	150.52	365.25
Average Monthly Active Users (MAU)	1.75	5.33	11.81	127.94	328.73
Customer Acquisition Cost (CAC)	1,050,000	1,230,000	787,500	376,300	913,125
Customer Acquisition Cost (CAC) - Per User	0.3000	0.1500	0.0500	0.0025	0.0025

User Engagement Metrics are OUTSIDE THE NORMAL RANGE:

Average Monthly Active User (MAU) = 50%-90% of Accounts

Benchmark User Retention Rate = In mobile apps, 70-80% of users are lost after the first day; retention over time close to 5%

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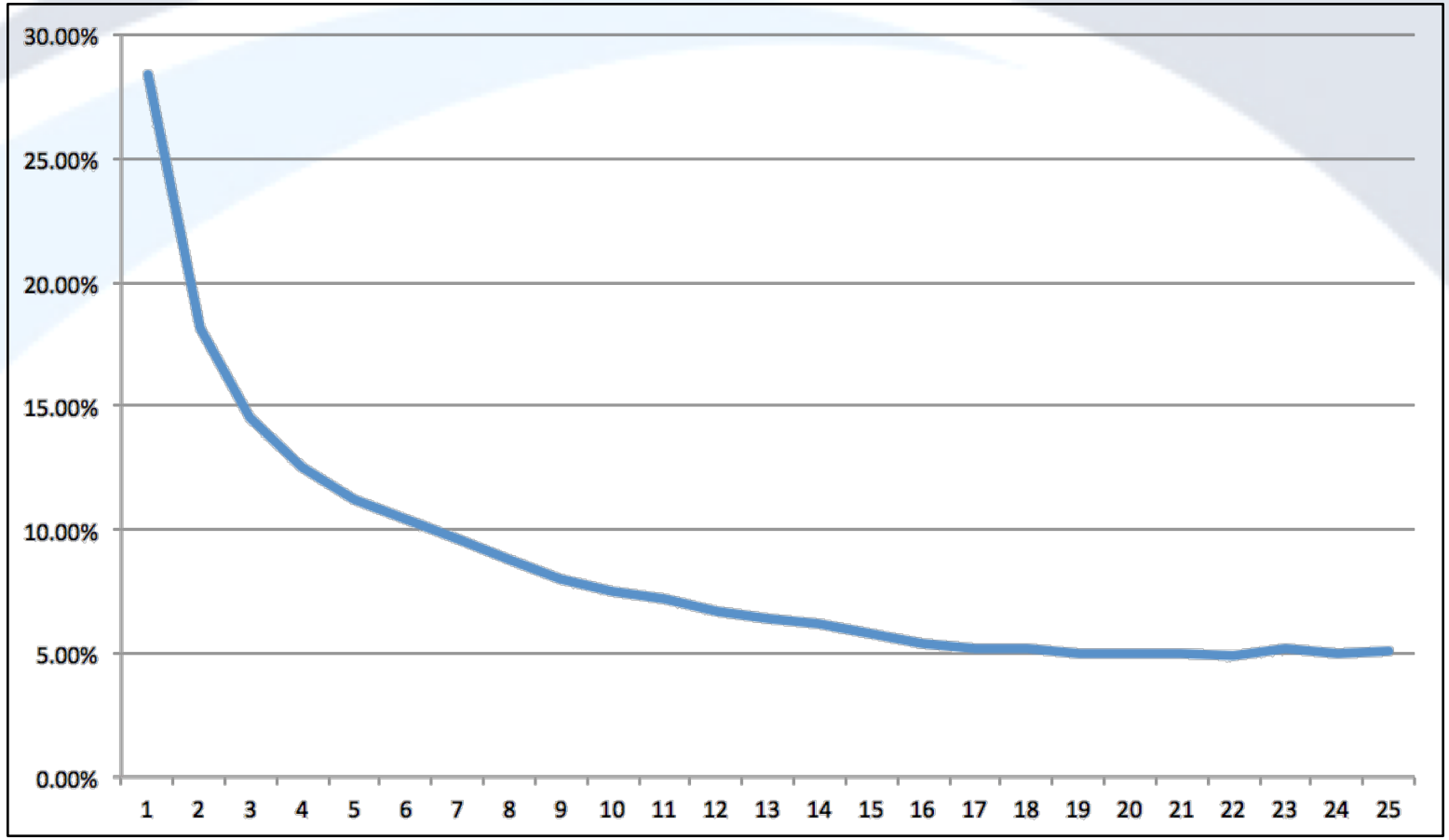
Sample Mobile App Retention Curve (By Day)



Source: PopcornMetrics.com

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Building a Financial Model: Key Takeaways

- **There is a cost to startup growth**
  - Funding needs are based on the pace of growth
  - Startups need a balanced financial model to understand the cost of growth
- **The financial model should match the business model**
  - Product type (software, hardware, technology)
  - Customer type (B2B, B2C)
  - Monetization strategy (manufacturing, licensing)
- **Financial modeling fundamentals include the following elements:**
  - Unit economics
  - People metrics
  - Industry ratios
- **Key mistakes to avoid in your financial model:**
  - Not enough people
  - Not enough cost to support growth
  - Metrics out of range

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