Economy of Software

IF2180 Sosio-informatika dan Profesionalisme

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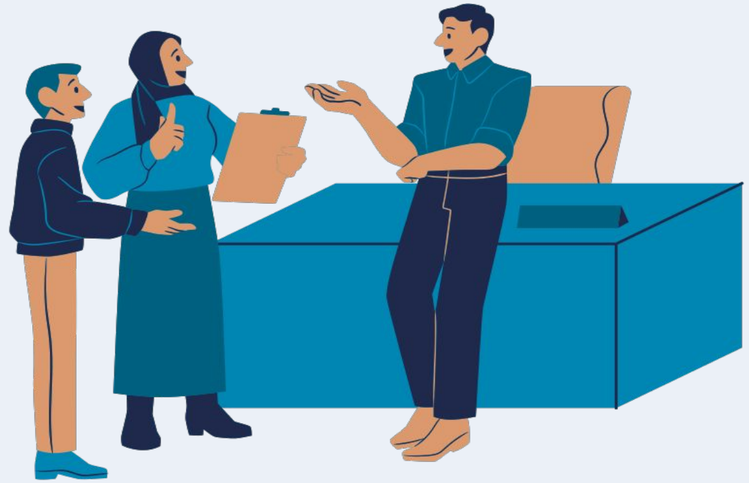
Today Talk

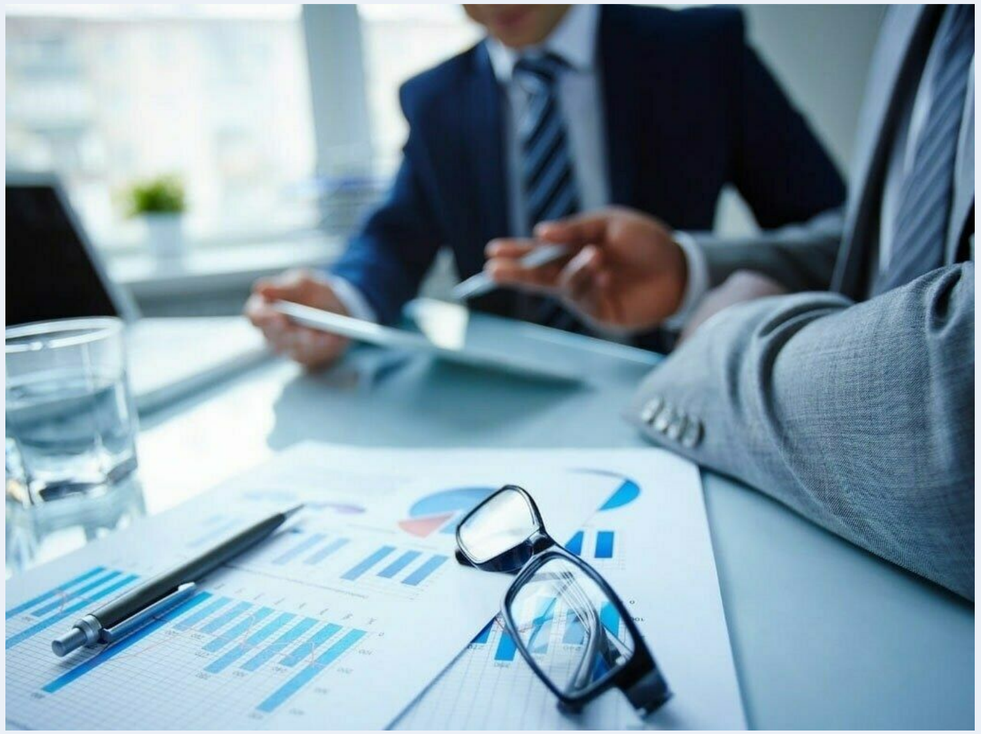
- Lean Canvas
- Langkah Menghitung Nilai Bisnis (Cost vs Revenue)
- Market Size and Scalability
- Analisis Manfaat Non Finansial



Economy of Software

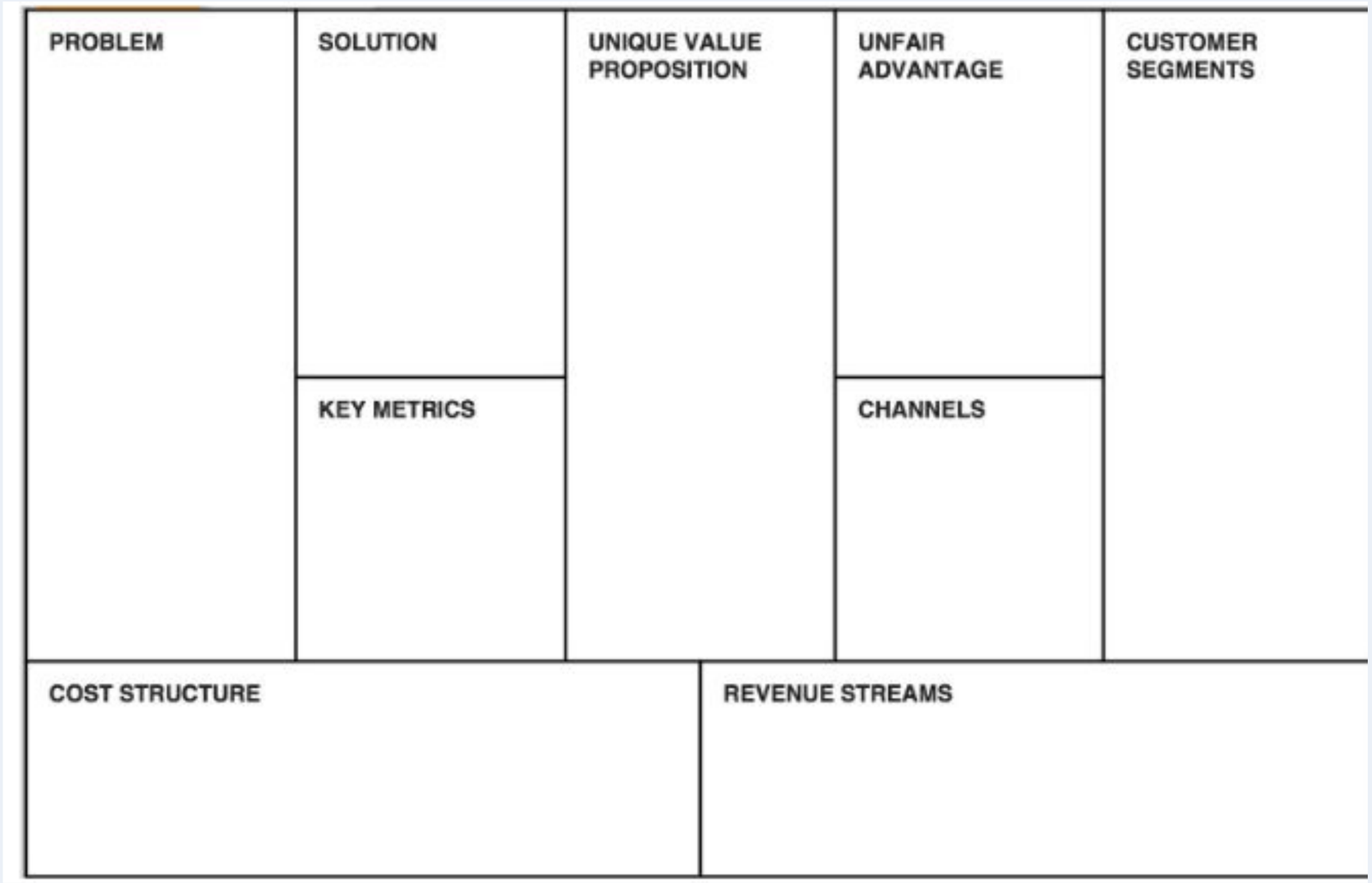
- Refers to the financial and market dynamics surrounding software development, deployment, and consumption.

- It considers:
  - cost efficiency
  - revenue generation
  - value that software brings to businesses and end users.



Lean Canvas (2009)

The Lean Canvas framework provides a structured approach, focusing on understanding the problem, solution, market, and financial model.



Why Lean Canvas

FAST

Compared to writing a business plan which can take several weeks or months, you can outline multiple possible business models on a canvas in one afternoon.

PORTABLE

A single page business model is much easier to share with others which means it will be read by more people and also more frequently updated.

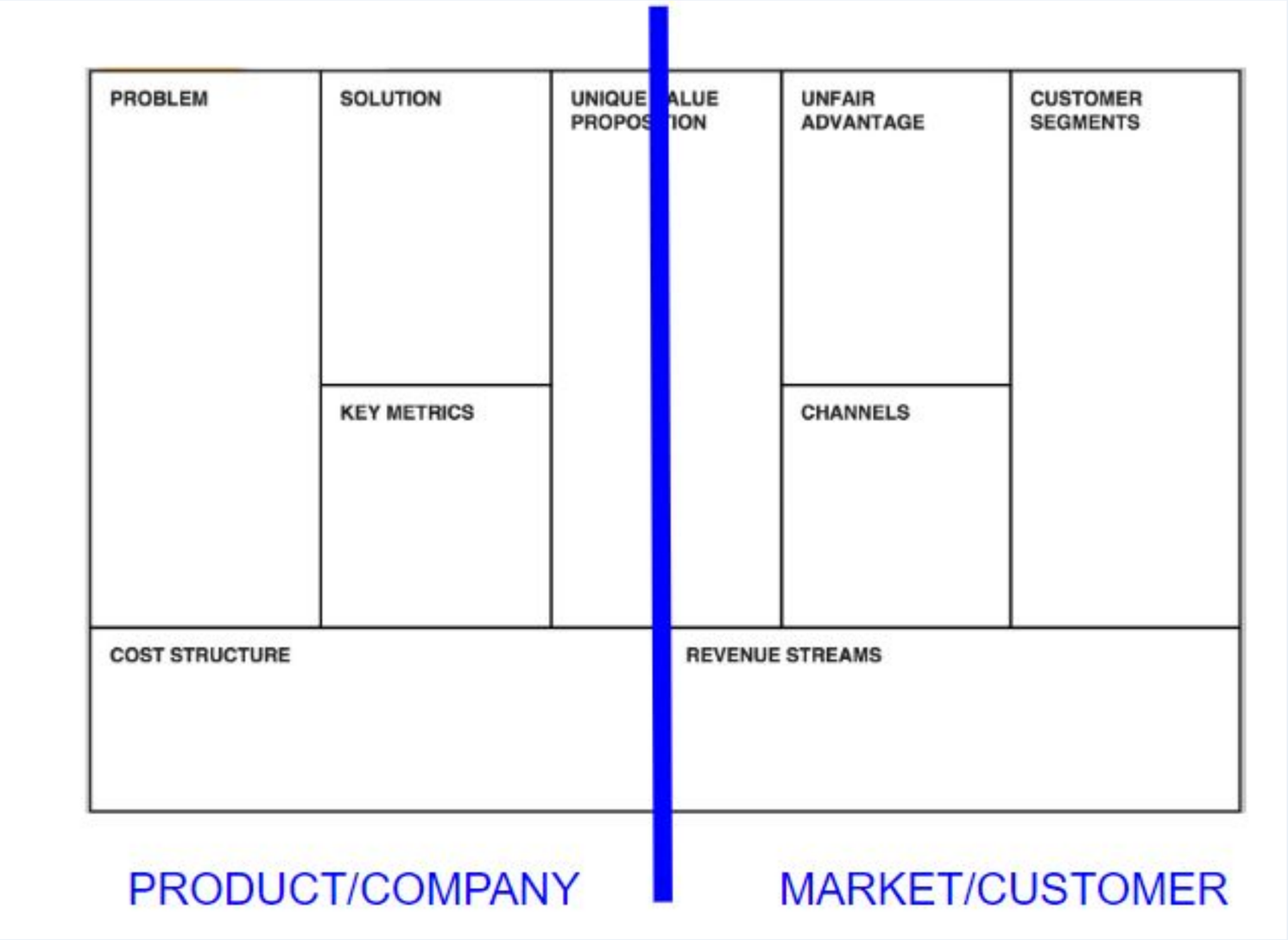
CONCISE

Lean Canvas forces you to distill the essence of your product. You have 30 seconds to grab the attention of an investor over a metaphorical elevator ride, and 8 seconds to grab the attention of a customer on your landing page.

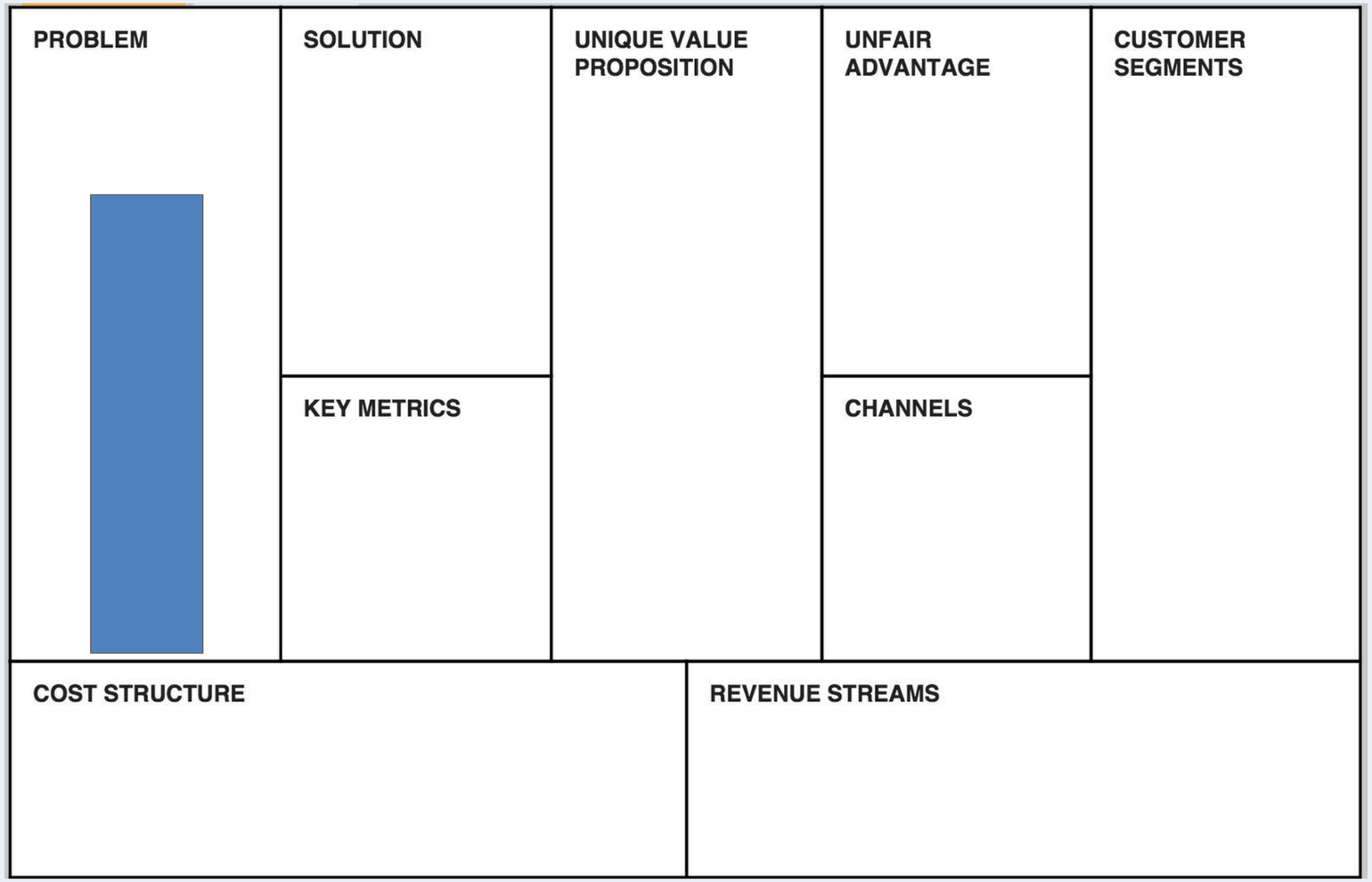
EFFECTIVE

Whether you're pitching investors or giving an update to your team or board, our built-in presenter tools allow you to effectively document and communicate your progress.

Let’s have a closer look



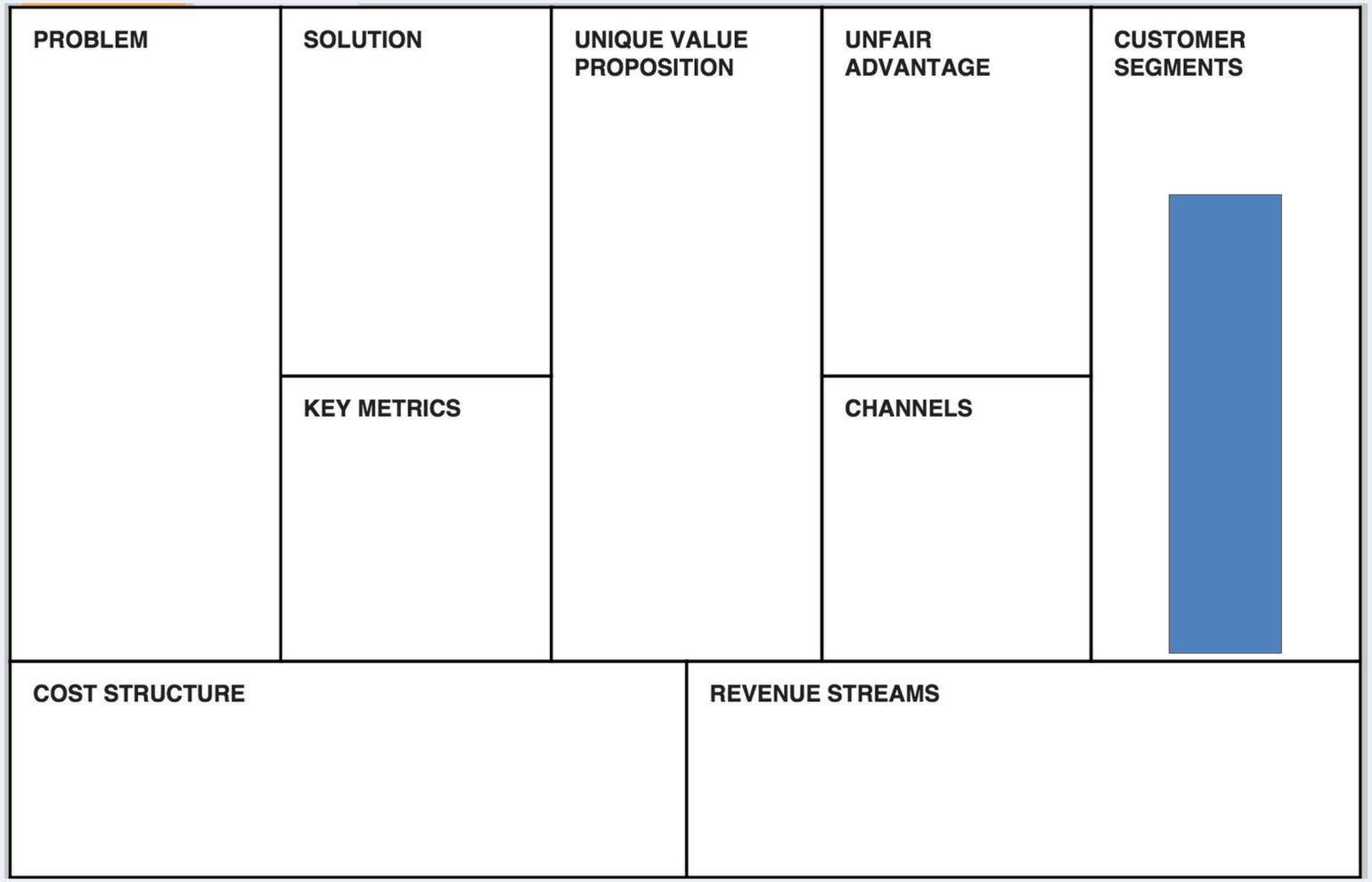
1. Problem



- Each customer segment (CS) you are thinking to work with will have a set of problems that they need solving.
- In this box try listing the one to three high priority problems that your CS has.

- be specific!
- start small
- multiple problems
- nested problems
- is it falsifiable?

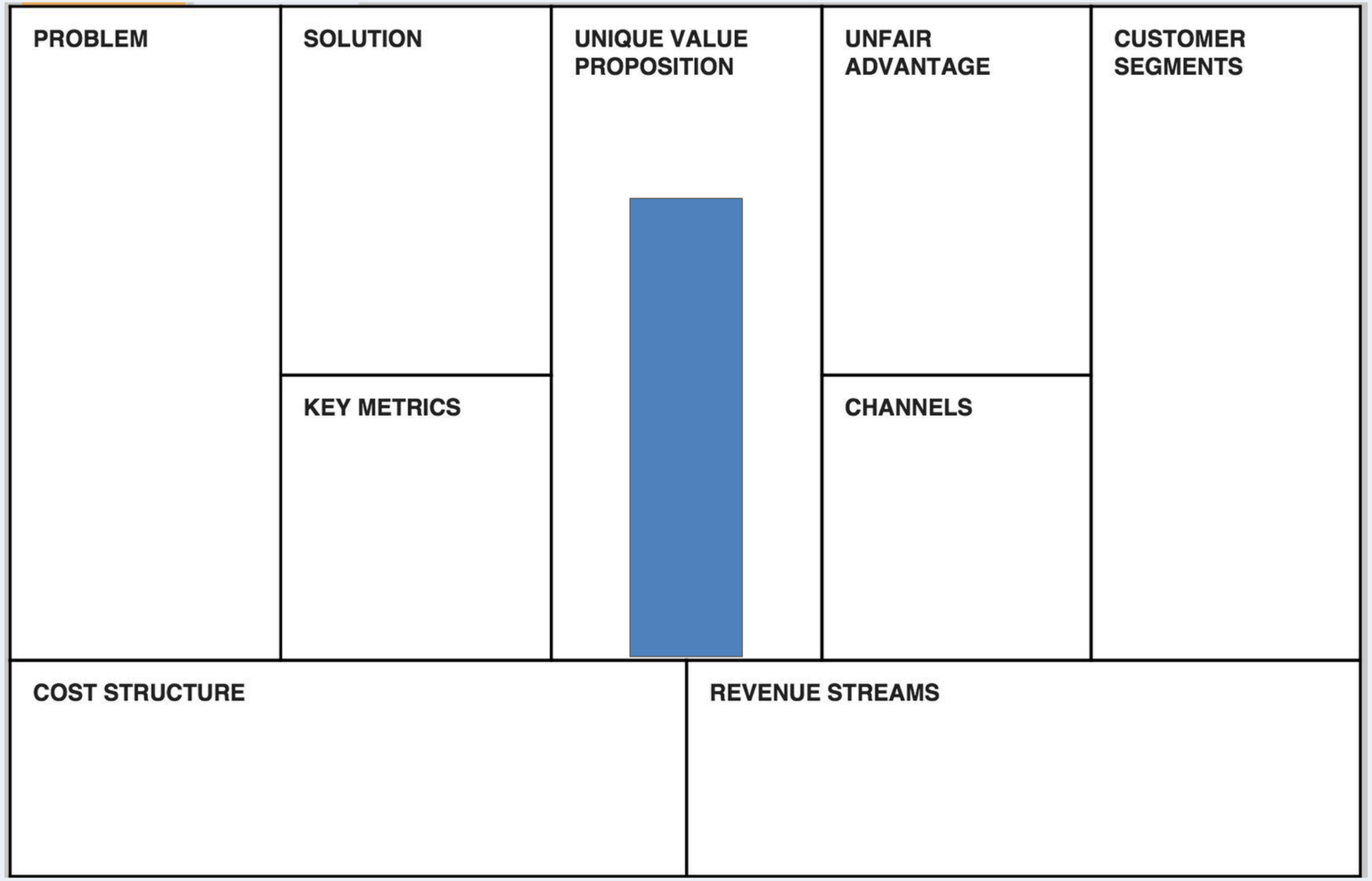
2. Customer



The problem and Customer Segments can be viewed as intrinsically connected — without a CS in mind you can't think of their problems, and visa-versa.

- be super specific!
- can you find them?
- multiple customers?
- consider personas

3. UVP

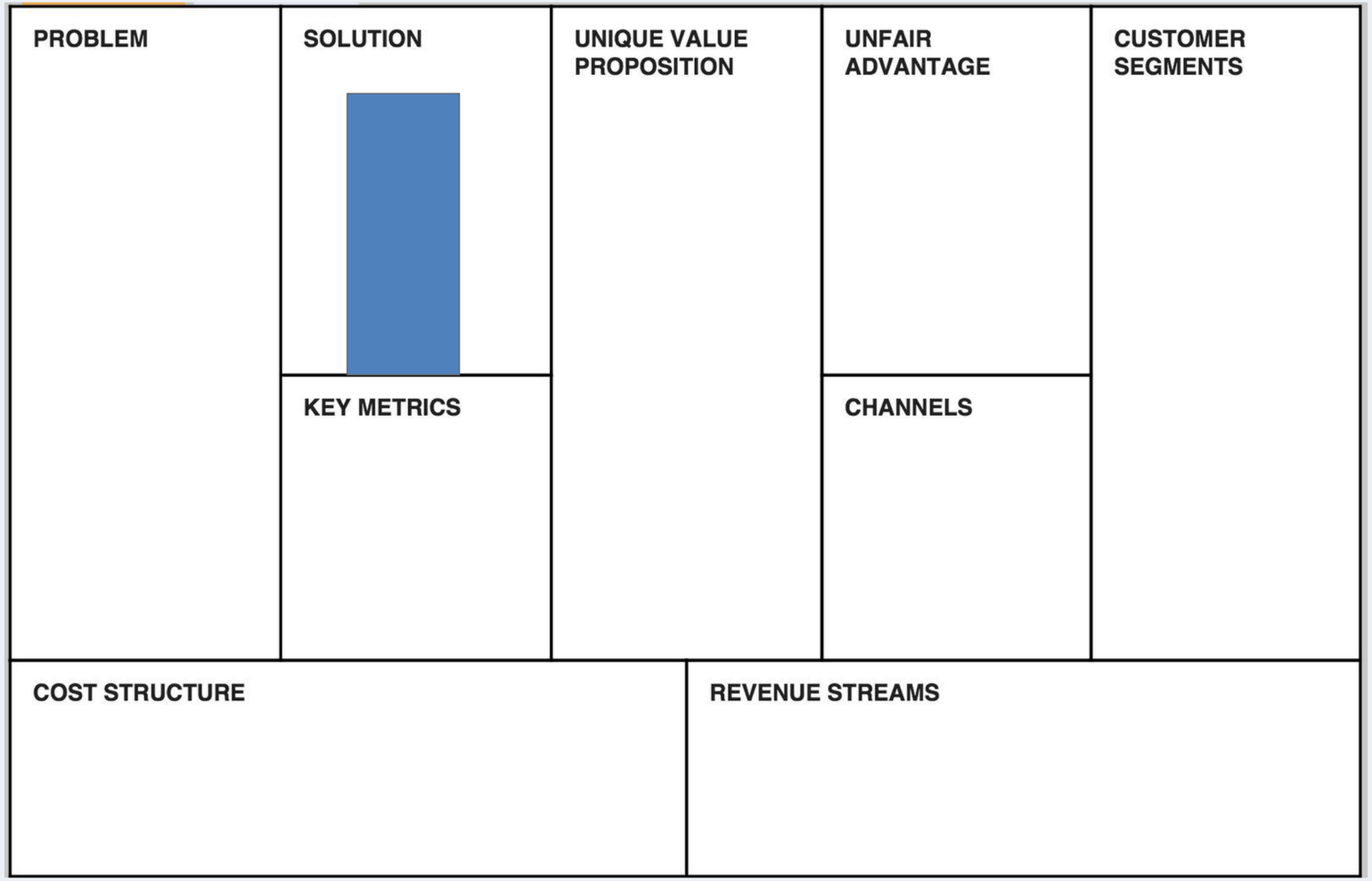


- A value proposition is a promise of value to be delivered.
- It's the primary reason a prospect should buy from you.
- A way to get your head around this is to think why are you different and why should your CS buy/invest time in you

- Not your product!
- Marriage of problem and customer
- Value creation!
- Differentiation
- Tag line?

CHECK THIS OUT: https://cxl.com/blog/value-proposition-examples-how-to-create/

4. Solution

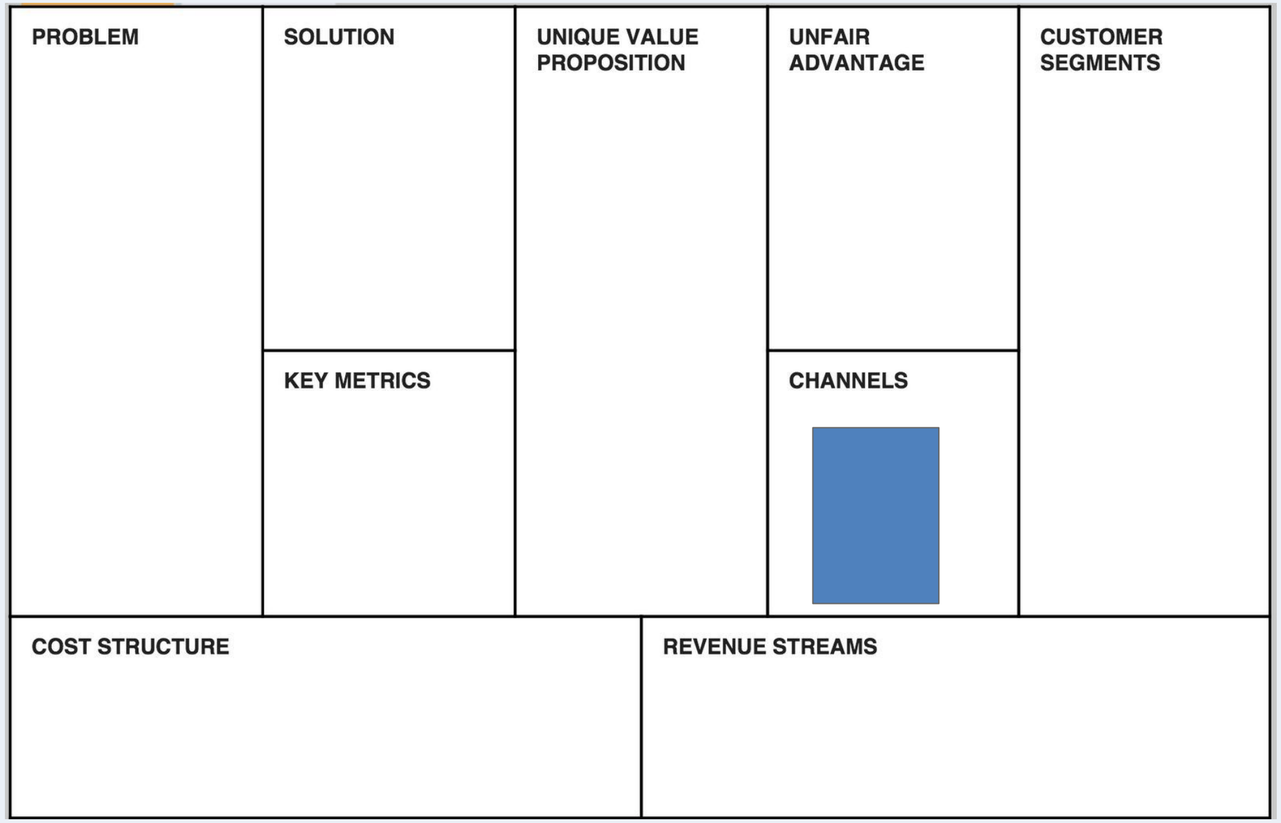


Solution is not in your office, it’s out there in the streets.

- So go interview your customer segment, ask them questions, and take those learnings.

- Your product!
- Key features
- Platform?
- Core use case?

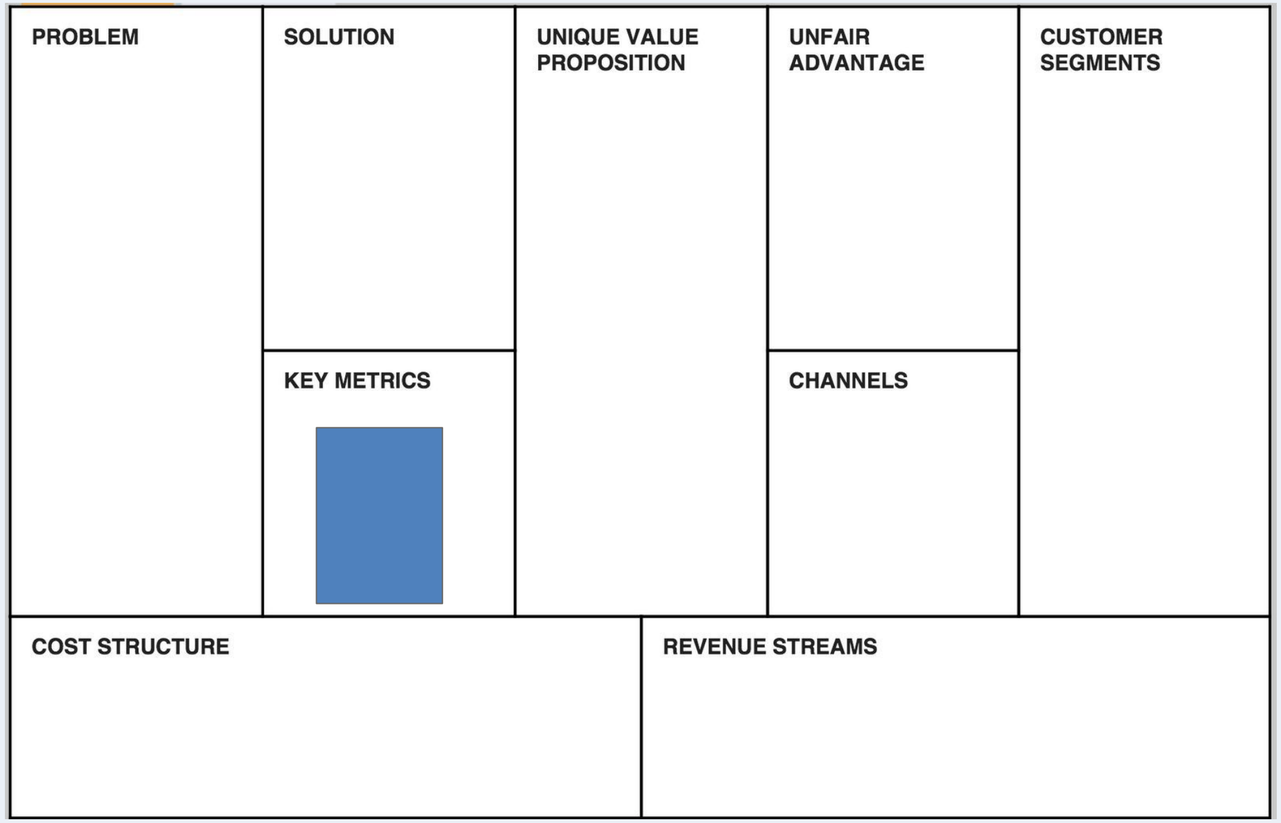
5. Channels



- Channels are ways for you to reach your CS.
- In the initial stages it’s important not to think about scale but to focus on learning.
- With that in mind try to think which channels will give you enough access to your CS at the same time give you enough learning.
- Channels can be email, social, CPC ads, blogs, articles, trade shows, radio & TV, webinars etc. and you don’t have to be on all of them, just where your CS are.

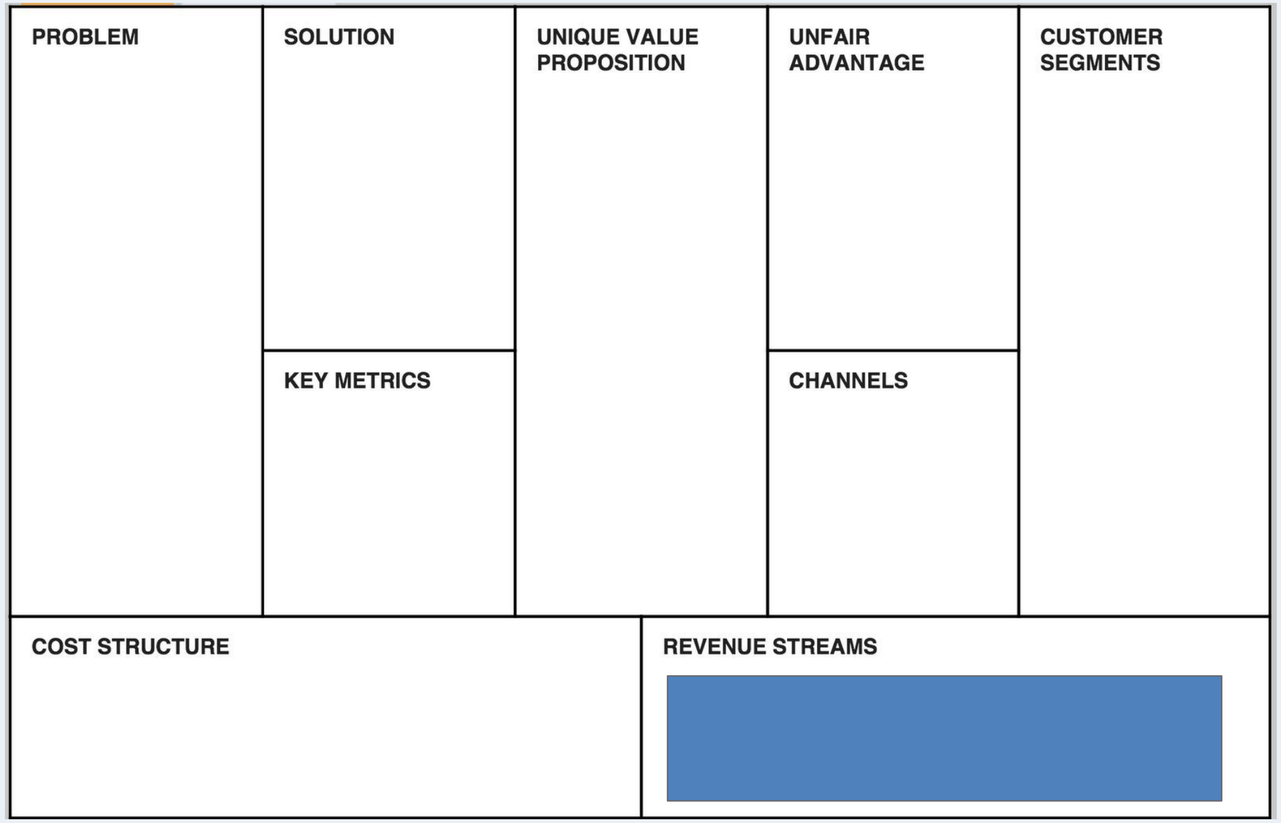
- Be specific!
- Multiple channels
- Now vs. later
- Cost matters

6. Metrics



- Measuring success
- KPIs
- Vanity vs. Actionable
- Unit economics
- OMTM (one metrics that matters)
- Customer Acquisition Cost (CAC): The cost of acquiring one customer.
- Lifetime Value (LTV): Total revenue generated from a single customer over their lifetime.
- Churn Rate: The percentage of customers who stop using the software over a given time.
- ROI for Users: Value provided to users compared to what they spend on the software.

7. Revenue

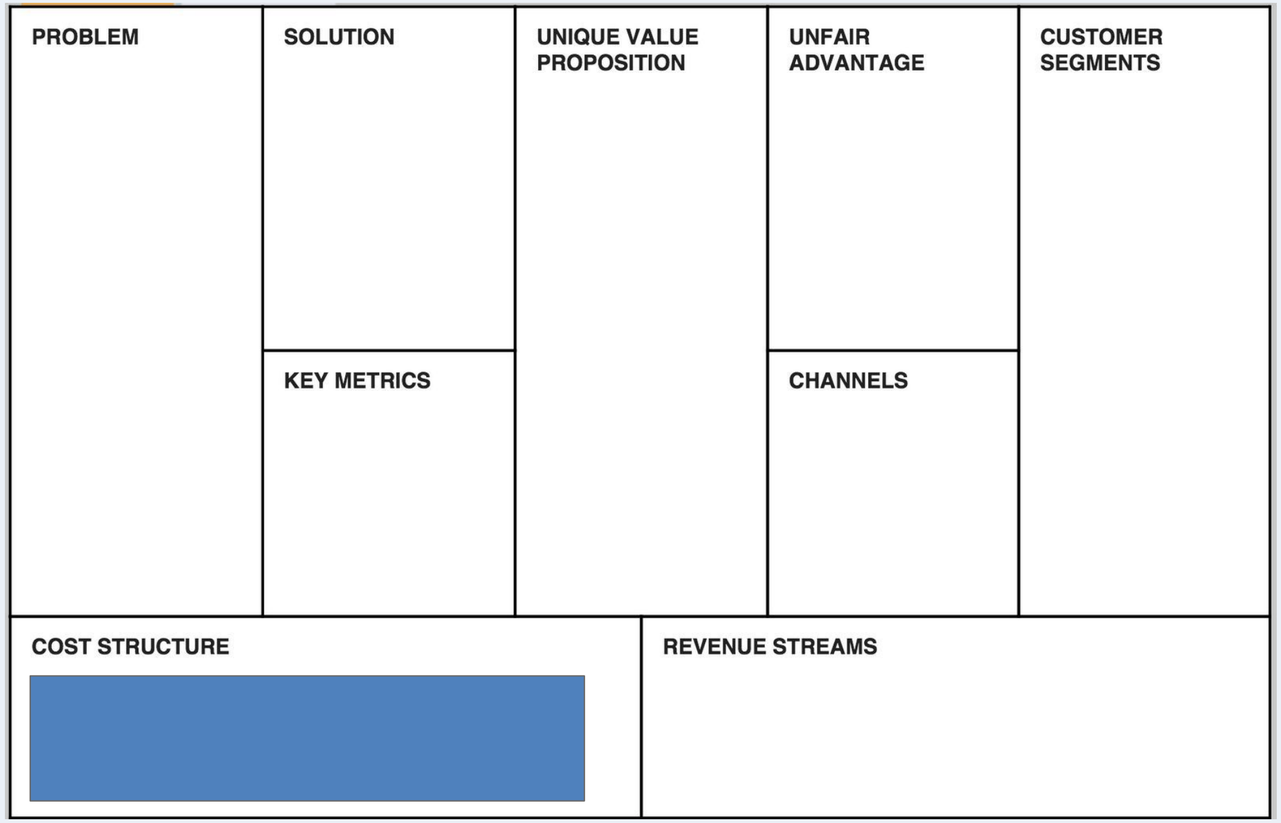


CHECK THIS OUT: http://www.ekonomiaconsultants.com/616/

- How you price your business will depend on the type of model it is
- it's quite common for startups to lower their cost, even offer it for free to gain traction, however, this can pose a few problems.
- The key being it actually delays/avoids validation. Getting people to sign up for something for free is a lot different than asking them to pay. There is also the idea of perceived value

- Be specific!
- LTV
- Gross margin
- Revenue vs. users
- Future streams?

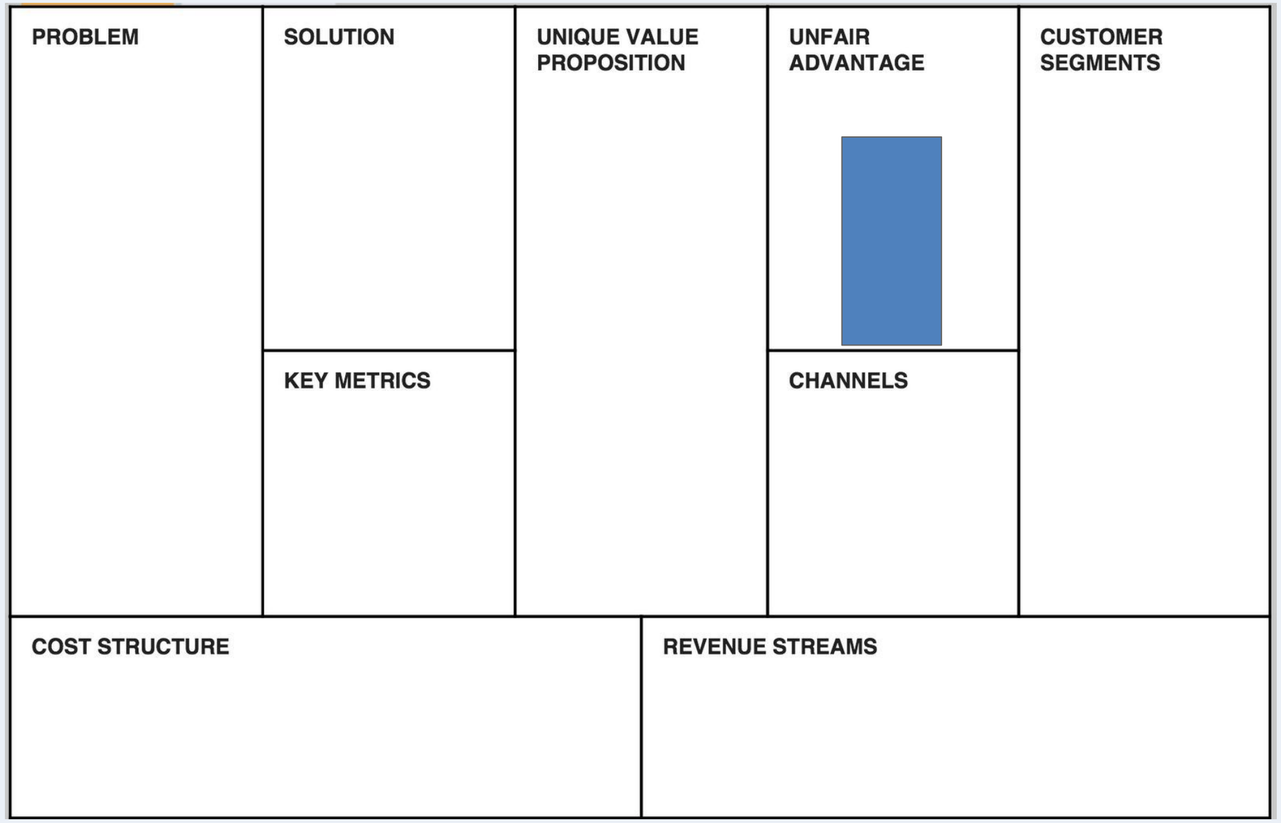
8. Costs



- List all the operational costs for taking this business to market.
- How much will it cost to build / landing page? What is your burn rate — your total monthly running costs? How much will it cost to interview your customer segment? How much do market research papers cost? etc.
- You can then use these costs and potential revenue streams to calculate a rough break-even point.

- Salaries!
- Channels?
- CAC
- Operations
- Unit economics

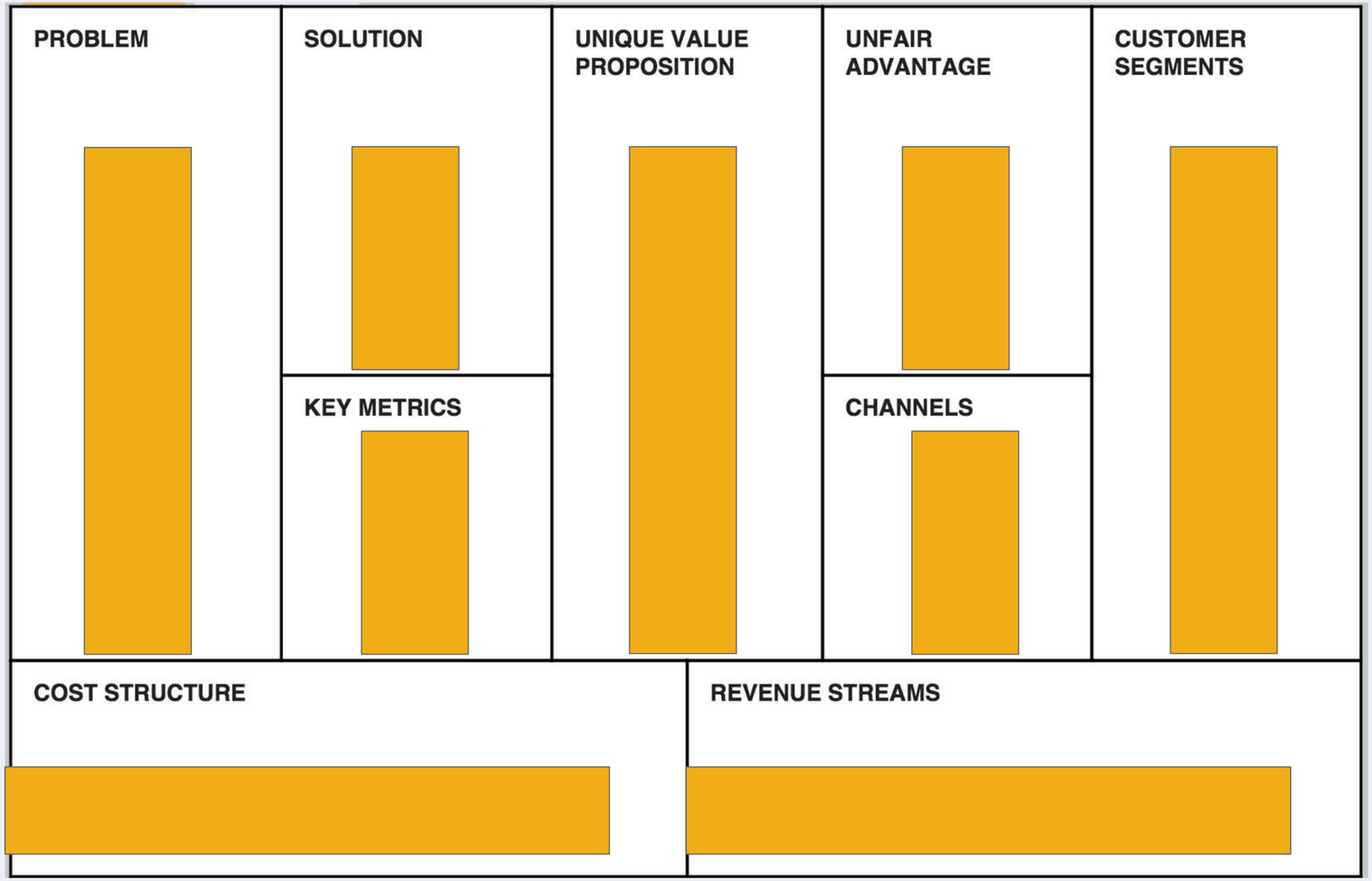
9. Unfair Advantage



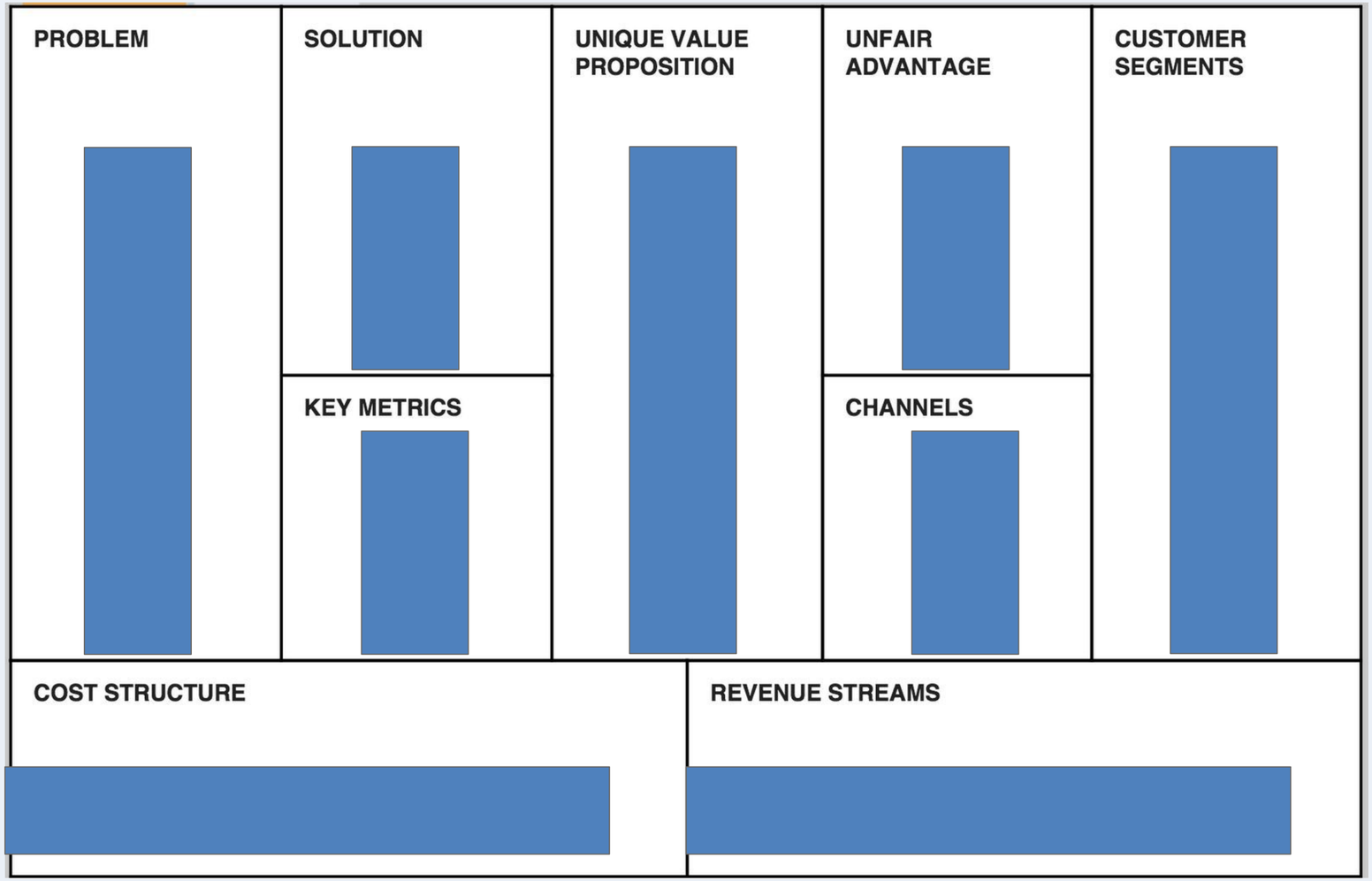
- *The only real competitive advantage is that which cannot be copied and cannot be bought.”* — Jason Cohen.
- Unfair advantage can be insider information, a dream team, getting expert endorsements, existing customers etc. So rather than think about adding something like “commitment and passion” as an unfair advantage (because it is not), think about what you have that no one else can buy.

- Not my favorite box
- Often doesn’t exist
- Often must be developed/earned

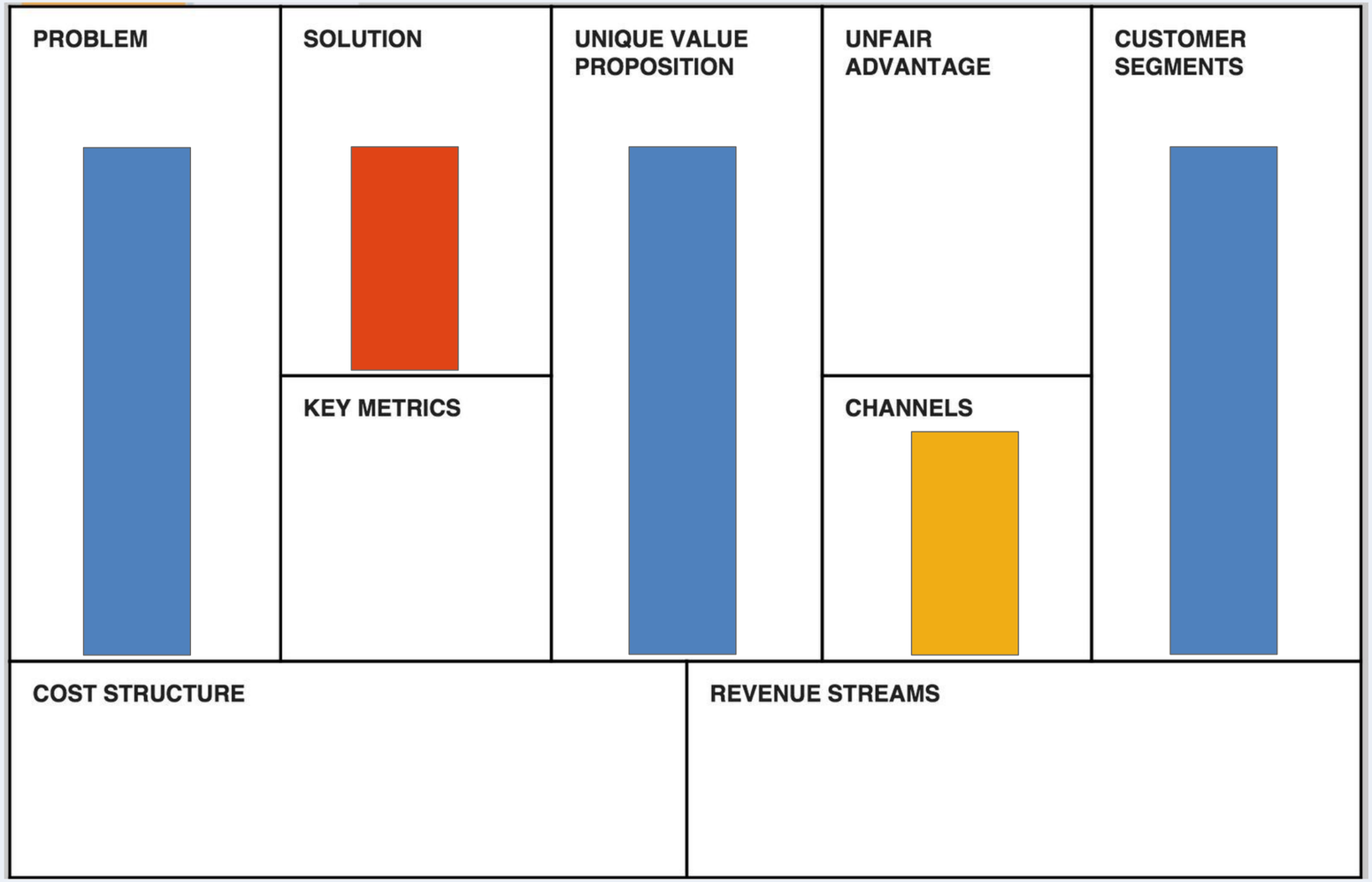
Your job is to fill the Canvas with hypotheses. . .



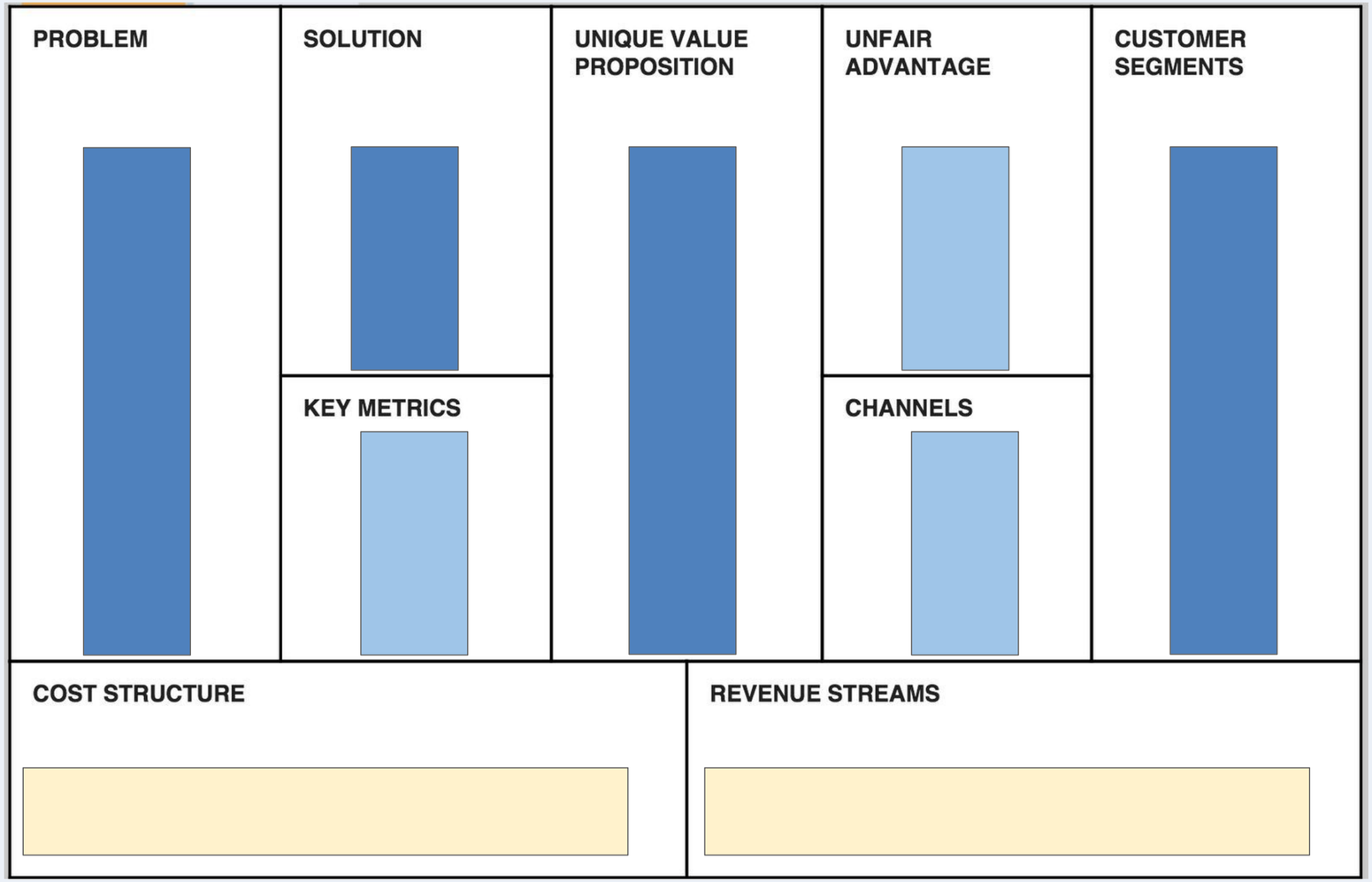
Then prove or pivot them.



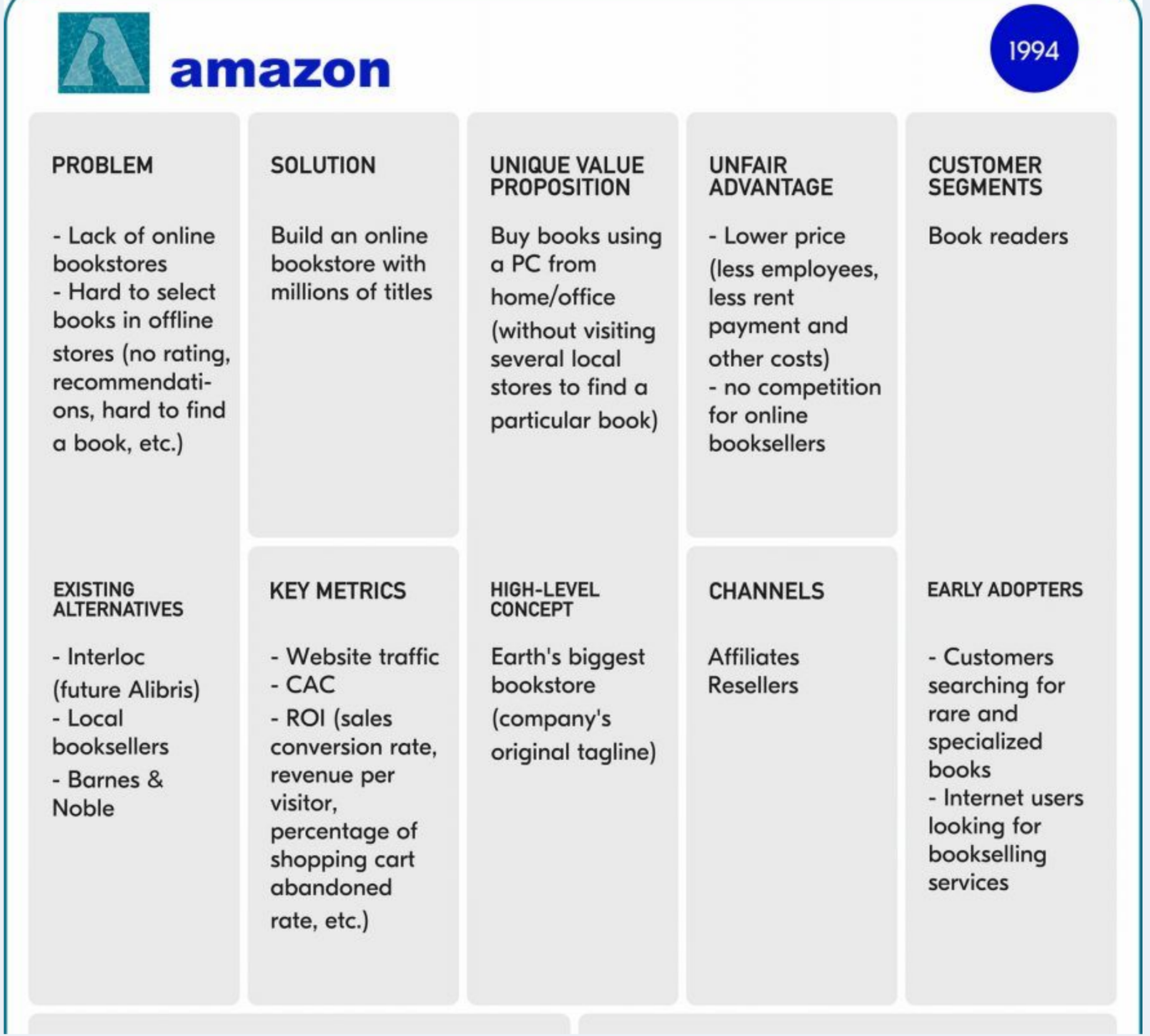
Problem/Solution Fit



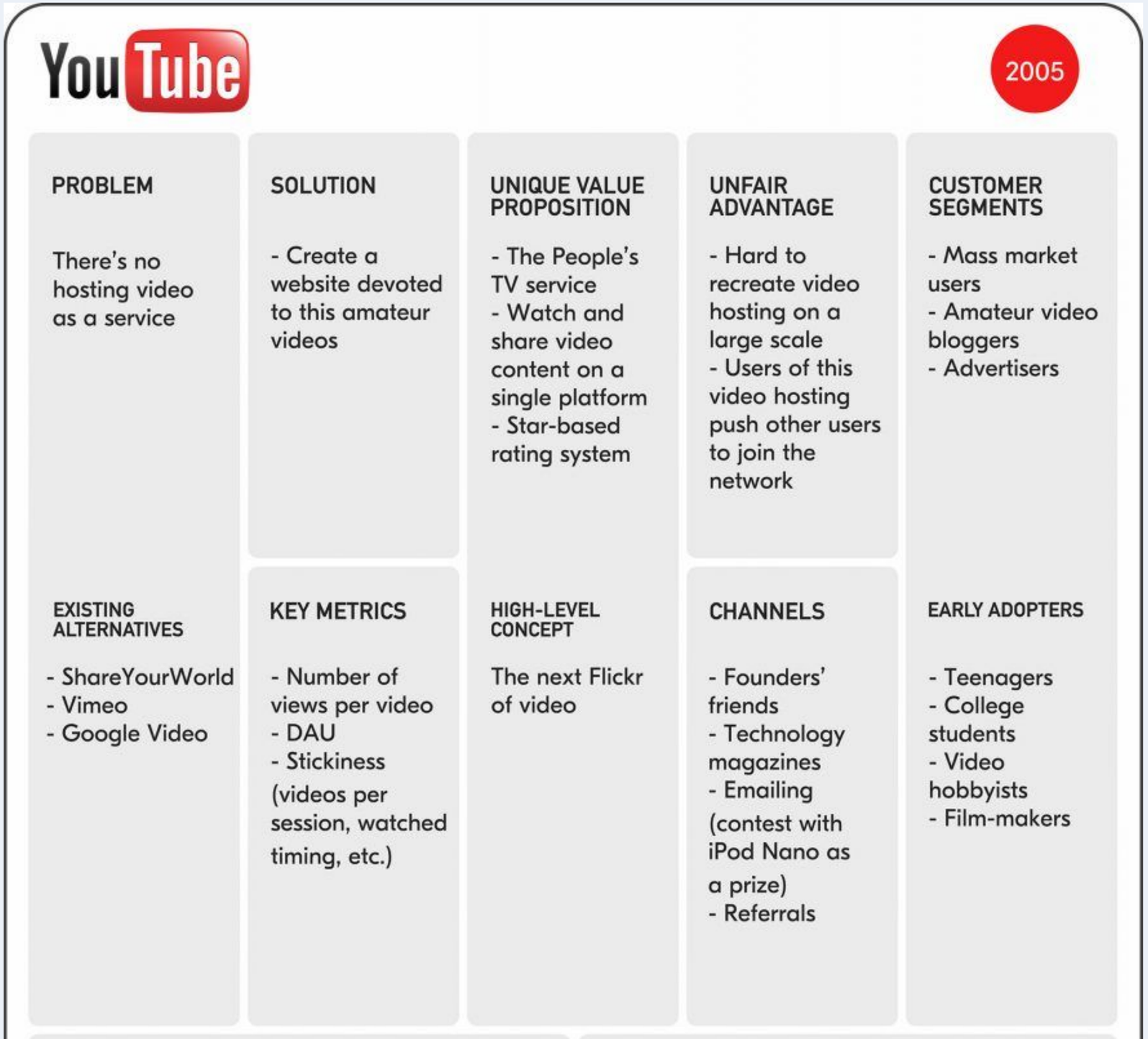
Product/Market Fit



Example: Amazon Lean Canvas



Example: Youtube Lean Canvas

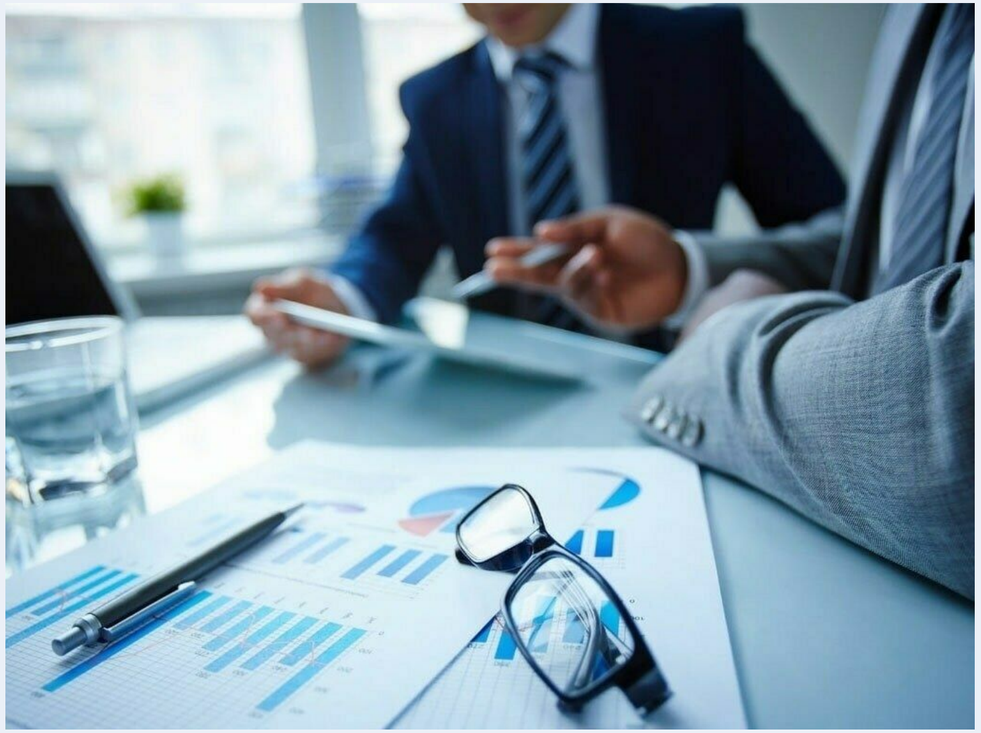


Langkah Menghitung Nilai Bisnis (Cost vs Revenue)

Tetapkan Tujuan Implementasi

Langkah awal adalah memahami apa yang diharapkan dari implementasi S/W. Misalnya:

- Mengurangi biaya operasional
- Meningkatkan produktivitas karyawan
- Mengotomatisasi tugas manual
- Memperbaiki pengalaman pelanggan
- Menambah pendapatan dengan produk/layanan baru
- ….



Estimasi Penghematan Biaya

Jika tujuan implementasi S/w adalah untuk menghemat biaya operasional, hitung penghematan biaya yang didapatkan:

- **Pengurangan tenaga kerja manual**
  Hitung berapa biaya yang dihemat dari pengurangan kebutuhan karyawan atau waktu kerja.
- **Pengurangan kesalahan**
  Dengan penerapan software, kesalahan manual dapat berkurang. Hitung biaya yang dihemat dari pengurangan kesalahan (misalnya, laporan yang salah, pengulangan kerja, dll.).
- **Pengurangan biaya operasional**
  Identifikasi proses yang diotomatisasi oleh S/W dan berapa banyak waktu atau uang yang dihemat.

Estimasi Peningkatan Produktivitas

Jika tujuan implementasi S/W adalah untuk meningkatkan produktivitas, hitung peningkatan produktivitas yang didapatkan:

- **Waktu yang dihemat**
  - Misalnya, jika sebuah S/W AI memotong waktu yang diperlukan untuk suatu tugas dari 8 jam menjadi 1 jam, hitung nilai dari waktu yang dihemat tsb.
- **Peningkatan throughput:**
  - Jika S/W AI memungkinkan peningkatan jumlah output tanpa meningkatkan biaya, hitung nilai tambahan yang dihasilkan dari output yang lebih tinggi.

Estimasi Peningkatan Pendapatan

Jika tujuan implementasi S/W adalah untuk meningkatkan pendapatan, hitung peningkatan pendapatan yang diperoleh:

- **Peluang produk/layanan baru**
  - Jika S/W/fitur/teknologi baru memungkinkan pengembangan produk atau layanan baru, perkirakan berapa pendapatan yang dihasilkan.
- **Retensi pelanggan**
  - S/W yang meningkatkan pengalaman pelanggan dapat meningkatkan retensi pelanggan, yang berarti peningkatan pendapatan dari pelanggan yang bertahan lebih lama.
- **Peningkatan cross-sell/upsell**
  - S/W dengan AI dapat membantu mengidentifikasi peluang untuk menjual produk atau layanan tambahan kepada pelanggan yang ada.

Hitung Ongkos Implementasi (1)

Untuk mendapatkan keseluruhan ongkos implementasi, perlu mempertimbangkan berbagai jenis biaya yang dibutuhkan dalam seluruh siklus pengembangan, implementasi, dan pemeliharaan S/W.

- **Biaya Pengembangan**
  - Biaya tim pengembang, konsultan/outsourcing, waktu pengembangan dari tim internal.
- **Biaya Infrastruktur**
  - Hardware jika dilakukan pembelian server baru (CPU,GPU), sewa Cloud Computing, biaya peningkatan infrastruktur jaringan untuk mendukung teknologi baru seperti AI (misalnya, untuk memproses data besar atau streaming real-time), biaya storage.

Revenue Models

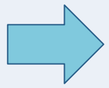
- **Licensing**
  - One-time or recurring fees for using the software.
- **Subscriptions**
  - Recurring revenue streams, often with tiered pricing models.
- **Freemium**
  - A free base version with paid premium features.
- **Usage-Based Pricing**
  - Fees based on usage metrics, common in SaaS platforms.

Hitung Ongkos Implementasi (2)

- **Biaya Perangkat Lunak lain (lisensi software dan tools) yang diperlukan.**
  - Untuk software dengan AI:
- **Biaya Data**
  - pengumpulan data
  - pembersihan dan pengolahan data
  - pelabelan data
- **Biaya Pelatihan Model AI**
  - Waktu komputasi untuk melatih model AI, terutama untuk model yang kompleks (seperti deep learning), biaya optimalisasi model termasuk melakukan iterasi pelatihan dan tuning hyperparameter.

Hitung Ongkos Implementasi (3)

- **Biaya Implementasi dan Deployment**
  - Biaya pengembangan P/L
  - Integrasi dengan sistem lain
  - Deployment ke produksi
- **Biaya Pemeliharaan**
  - Pemeliharaan model AI
  - Pemeliharaan infrastruktur
  - Biaya monitoring dan troubleshooting
  - Biaya security



- **Software Deployment Models**
  - **Cloud-Based (SaaS):** Lower initial costs, ongoing operational revenue.
  - **On-Premise:** Higher upfront costs but limited scalability in revenue.
  - **Hybrid Models:** Combining elements of cloud and on-premise.

Hitung Ongkos Implementasi (4)

- **Biaya pelatihan pengguna**

- **Biaya regulasi dan kepatuhan**
  - misal kepatuhan terhadap regulasi dan biaya audit dan pengujian etis jika diperlukan)
  - Administrasi dan laporan

- **Biaya Kesempatan** (waktu dan sumber daya yang dihabiskan untuk mengimplementasikan bisa mengalihkan fokus dari proyek lain yang juga bernilai tinggi).

- **Biaya penonaktifan atau penggantian** (Jika S/W perlu diganti di masa depan, misalnya karena teknologi yang lebih baru, biaya penonaktifan sistem lama dan implementasi yang baru harus dipertimbangkan).

Hitung ROI (Return on Investment)

Setelah menghitung berbagai dampak AI pada biaya dan pendapatan, hitung ROI dengan rumus sebagai berikut:

$$\text{ROI} = \frac{\text{Total Nilai yang Dihasilkan - Biaya Implementasi}}{\text{Biaya Implementasi}} \times 100$$

Contoh Perhitungan RoI

- Lihat studi kasus dari perusahaan lain yang sudah mengimplementasikan S/W serupa di industri serupa.
- Data benchmark bisa membantu dalam memprediksi dampak dari implementasi S/W.

Contoh:

Jika implementasi S/W memungkinkan sebuah perusahaan menghemat Rp 100 juta per tahun dalam pengurangan tenaga kerja dan meningkatkan pendapatan tahunan sebesar Rp 50 juta melalui otomatisasi penjualan, dengan biaya implementasinya Rp 200 juta, maka:

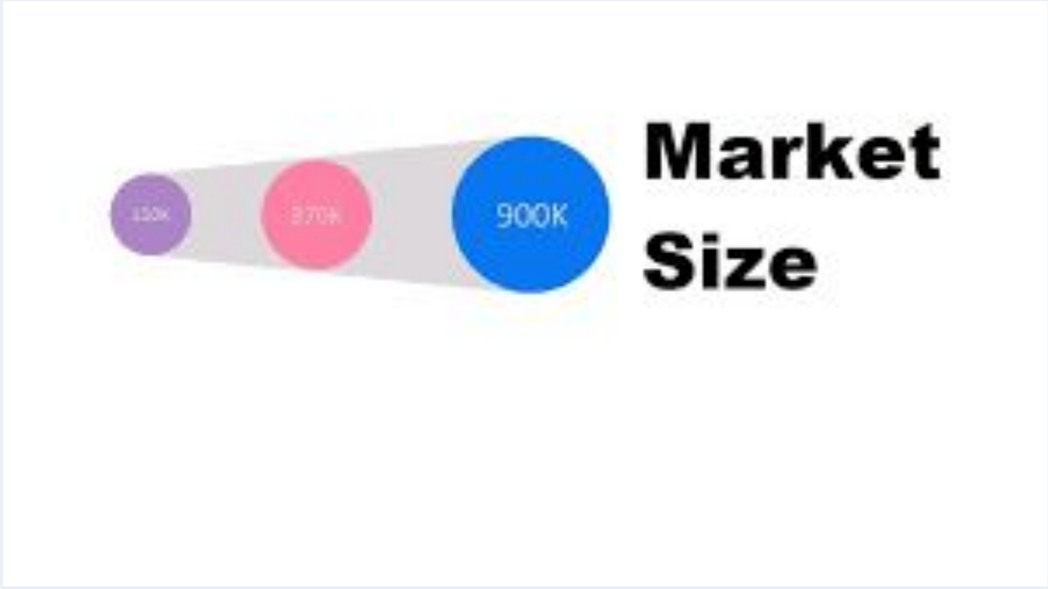
- Nilai yang dihasilkan: 100 juta(penghematan) + 50 juta(peningkatan pendapatan) = 150 Juta
- Biaya implementasi: 200 juta
- ROI= (150 juta −200 juta)/200 juta ×100% =−25%

Dalam hal ini, perusahaan akan mengalami kerugian pada tahun pertama, tetapi dalam jangka panjang, keuntungan akan mulai terlihat setelah nilai yang dihasilkan melampaui biaya implementasi.

Market Size and Scalability

- Software products typically have high scalability with relatively low incremental costs for additional users.

- Targeting larger markets or niche high-value markets significantly impacts profitability.



Analisis Manfaat Non Finansial

Penting juga melihat manfaat S/W dari aspek non finansial, seperti:

- **Kecepatan pengambilan keputusan**

  S/W dapat membantu perusahaan membuat keputusan lebih cepat.

- **Inovasi**

  Implementasi S/W mungkin membuka jalan bagi inovasi lebih lanjut.

- **Pengalaman pelanggan yang lebih baik**

  Meskipun sulit diukur secara langsung, pengalaman pelanggan yang lebih baik dapat berkontribusi pada nilai jangka panjang.

Kesimpulan

1. Implementasi S/W menawarkan potensi nilai bisnis yang besar, seperti peningkatan efisiensi, pengurangan biaya, dan peluang pendapatan baru.
2. Namun, kesuksesan implementasi S/W bergantung pada pemahaman dan mitigasi risiko.
3. Dengan pendekatan yang tepat, manfaat S/W dapat dimaksimalkan sambil meminimalkan potensi risikonya.

"Please feel free to reach out if you have any questions!"