

**1. CUSTOMER SEGMENT(S)**

CS

Who is your customer?  
i.e., working parents of 0-5 y.o. kids

Here customers are the one who is defined to work with reading handwritten digits. They are present in places like bank, school, college, post offices, etc

**6. CUSTOMER CONSTRAINTS**

CC

What constraints prevent your customers from taking action or limit their choices of solutions? i.e., spending power, budget, no cash, network connection, available devices.

They believe such alternatives might result in mistakes and flaws and might not be practical and there are possibilities for lack of stable internet connections and unavailability of devices. It is hard task for the machine to recognize the handwritten digits which are not perfect.

**5. AVAILABLE SOLUTIONS**

AS

Which solutions are available to the customers when they face the problem or need to get the job done? What have they tried in the past? What pros & cons do these solutions have? i.e., pen and paper is an alternative to digital notetaking

Currently there are no popular programs and software's to detect the handwritten digits

**2. JOBS-TO-BE-DONE / PROBLEMS**

J&amp;P

Which jobs-to-be-done (or problems) do you address for your customers? There could be more than one; explore different sides

Jobs to be done: To identify the digits in the manually written forms, Cheques filled by people in banks, Phone numbers written manually in register notebook of hospitals.  
Problems: Dim lighting and weak eyesight

**9. PROBLEM ROOT CAUSE**

RC

What is the real reason that this problem exists? What is the back story behind the need to do this job? i.e., customers have to do it because of the change in regulations.

Different writing styles used by different people. Customers find it difficult to read the handwritten digits as different people use different writing styles and different languages. This investigation offers comparison of various deep literacy and machine literacy algorithms,

**7. BEHAVIOUR**

BE

What does your customer do to address the problem and get the job done? i.e., directly related: find the right solar panel installer, calculate usage and benefits; indirectly associated: customers spend free time on volunteering work (i.e., Greenpeace)

Designing the best software that more quickly and accurately identifies the handwritten digits.

**3. TRIGGERS**

[What triggers customers to act? i.e., seeing their neighbour installing solar panels, reading about a more efficient solution in the news.

TR

This occurs when you have evidence that customers care about certain jobs, pains, and gains. At this stage you've proved the existence of a problem and have designed a value proposition that addresses your customers' jobs, pains and gains

**4. EMOTIONS: BEFORE / AFTER**

How do customers feel when they face a problem or a job and afterwards? i.e., lost, insecure > confident, in control - use it in your communication strategy & design.

Customers become irate and frustrated because they can't properly read the handwritten digits. They become confused and anxious as a result of not being able to finish their work on time.

EM

**10. YOUR SOLUTION**

SL

If you are working on an existing business, write down your current solution first, fill in the canvas, and check how much it fits reality. If you are working on a new business proposition, then keep it blank until you fill in the canvas and come up with a solution that fits within customer limitations, solves a problem and matches customer behaviour.

A novel method for handwritten digit recognition system helps in recognizing the handwritten digits that uses MNIST dataset for training the model. The model gets the image of the handwritten digit and recognizes the handwritten digit. Convolution neural networks algorithm is used over the MNIST dataset to recognize the handwritten digits

**8.CHANNELS of BEHAVIOUR**

CH

**8.1 ONLINE**

What kind of actions do customers take online? Extract online channels from #7

Requires Stable internet connection for image processing.

**8.2 OFFLINE**

What kind of actions do customers take offline? Extract offline channels from #7 and use them for customer development.

Obtain modern electronic devices and check they are working