



# Human-Computer Interaction

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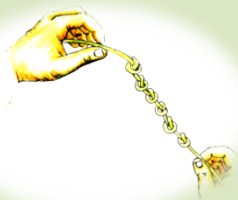
# Affinity Diagram and Diagnostic Map

Joint problems identification and  
collective analysis



# Case study: EMR system

- Significant difference between the prescribed and consumed medications in Region Zealand, Denmark
  - Electronic Medical Record system
- **2500** users, **1 million** medical transactions and **20,000** patients



- User survey conducted;
  - **377** respondents (115 physicians & 220 nurses)
  - **127 fixed** response questions in 45 minutes
  - **2200** optional **free** text comments (700 from physicians, 1300 from nurses & 200 from others)
  - Also **focus group** discussions
- Results
  - Medication procedures had become **less safe** and sometimes led to **life-threatening situations**



# Affinity Diagram

- **Definition**

- A **group** decision-making technique designed to **sort** a **large** number of ideas, process variables, concepts, and opinions into naturally related groups. These groups are **connected** by a **simple and common concept**



# Affinity Diagram (Cont.)

- **When to Use**

- When you are confronted with **many** facts or ideas in apparent chaos.
- When issues seem **too large** and **complex** to handle.
- When group **consensus is necessary**



# Creating an Affinity Diagram

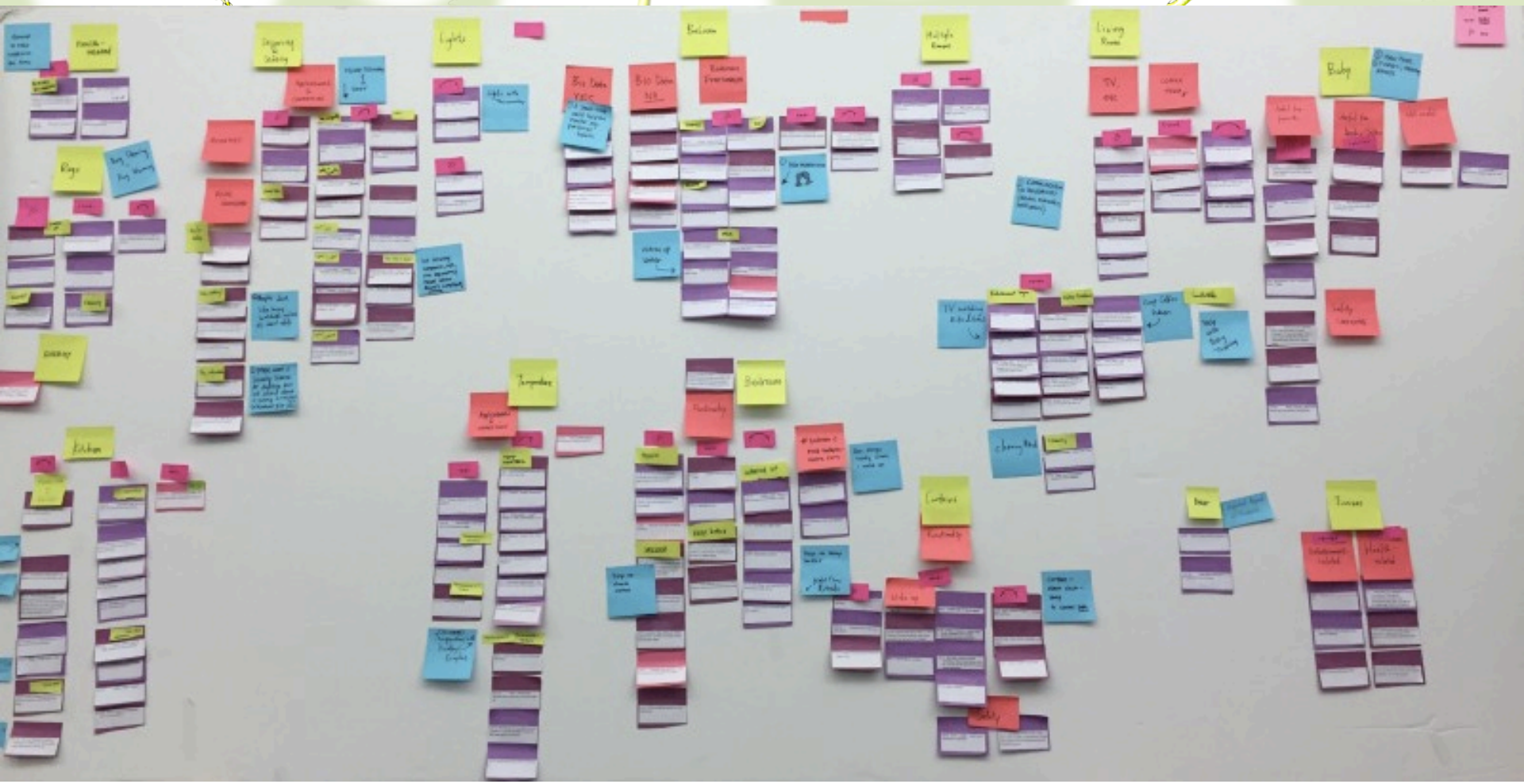
Step 1 - Generate ideas

Step 2 - Display ideas

Step 3 - Sort ideas into groups

Step 4 - Create header cards

Step 5 - Draw finished diagram





RAY

KELVIN

SAM

BIO

OWNS 22 HOUSES & EARNS BY COLLECTING MORTGAGE

SITES/BRANDS - CAR SALES - PICKLES AUCTIONS

STRATTON NOT WELL KNOWN OUTSIDE OF CAR FINANCE

SOLE PROPRIETOR - REAL ESTATE

WORKS AS A UX CONSULTANT/CONTENT STRATEGIST

NO CREDIT HISTORY AS I'M ORIGINALLY FROM THE STATES

ROUGH POINTS INTERACTION

I WAS LOOKING FOR A CAR 2-3 YEARS AGO

I GOT ON THE STRATTON WEBSITE. RECORDED MY DETAILS

I KEPT GETTING AN EMAIL FROM THEM [STRATTON] ONCE A MONTH

WHEN I DECIDED TO BUY A CAR THE PEOPLE AT KIA GAVE ME A QUOTE

WHEN I CALLED HOME... I HADN'T PURCHASED A CAR AT THAT POINT. I THOUGHT STRATTON

I JUMPED ON WEBSITE/REQUESTED QUOTE

I GOT A REASONABLE QUOTE FROM THEM

STRATTON DID A BETTER FINANCE DEAL THAN WHAT KIA DID

I THINK I GAVE THEM THE DEAL WITH KIA AND SAID BEAT IT!

IN THE END WE SAID PRIVATELY & BOUGHT A NEW CAR

IT WAS THE FIRST TIME I'D USED STRATTON BUT I HAD MADE ENQUIRIES PREVIOUSLY

I DID A TEST DRIVE WITH THE DEALER. STRATTON RECOMMENDED CAR CONNECT

QUOTE CHANGED BECAUSE I DECIDED TO PUT MORE DOWN PAYMENT

CAR CAME BEFORE THE FINANCE

CAR CHANGE VERY EASY BECAUSE I WAS NOT HAPPY W/DR

STRATTON LOST DEAL TO CAR COMPANY BECAUSE THEY OFFER BETTER

FOUND STRATTON ONLINE THROUGH GOOGLE SEARCH

REPAYMENT SCHEDULE/OPTIONS WHICH FINANCE COMPANY

FOUND STRATTON ONLINE DID AN ONLINE QUOTE

IT WAS VERY EASY. SOMEONE LEAD ME THROUGH THE WHOLE PROCESS

CC-TENDER PROCESS; PRETTY GOOD DEAL!

LOT 2 OTHER CARS AFTER FIRST, THRU STRATTON

KEPT TO GET SECOND CAR THRU STRATTON

I DON'T HAVE MULTIPLE CHOICES. CONSULTANT RECOMMENDED ONE OPTION

HAS HAD MULTIPLE DEALINGS WITH STRATTON

IT DIDN'T FEEL LIKE AN APPLICATION PROCESS RE-LITH CONSULTANT

DEALERSHIP WAS TRYING TO WIN MY BUSINESS WITH FINANCE

TEST DROVE A COUPLE OF CARS BEFORE CHOOSING ONE

I LOOKED AT CARS/NET FOR CAR BECAUSE THEY HAVE THE BEST SELECTION

FIRST POSITIVE & SECOND NEGATIVE

YOU KNOW I'VE GOT GOOD CREDIT. YOU KNOW I PAY ON TIME

GOALS/MOTIVATION

EVERY TIME I SHOP AROUND FOR FINANCE, THAT'S HOW MOST OF MY TIME IS SPENT

I'M LOOKING FOR A GOOD TRADE IN DEAL FOR MY OLD CAR

I CHOSE KIA BECAUSE OF THE 7 YR WARRANTY. I KEEP FOR 5 YRS THEN I OVER-PAIDER SHELL BE

LOOKING FOR DETAILED QUOTE, INTEREST RATES, RESIDUAL REPAYMENT PERIODS

STRATTON WAS PROMPT, IT WAS THE DEALER THAT WAS SLOW

100% FINANCE IS IMPORTANT BECAUSE I USE MY CASH TO DO SOME-THING ELSE

I DON'T WANT TO TALK TO ANYONE WHEN GETTING A QUOTE

I LIKE TO COMPARE DIFFERENT QUOTES BEFORE CHOOSING

I LIKE TO SEE LOAN REPAYMENTS DEFERRED MONTHLY

DOESN'T MATTER WHO I DEAL WITH. AS LONG AS THEY COME UP WITH THE BEST DEAL!

HAD STRATTON BEEN ABLE TO GET ME A TRADE IN PRICE FOR MY CAR, WOULD BEAM

EXIT FEES & INTEREST MAIN CONCERN

'I CHANGE MY CAR EVERY 3 YEARS'

'HE [CONSULTANT] HELPED ME A LOT... OK, I HAVE TO GO BACK' (W/DR)

I DIDN'T STOP SHOPPING AROUND. STICK WITH STRATTON

MORE EXPENSIVE, BUT BECAUSE OF THE SERVICE

GIVE ME A QUOTE AS FAST AS POSSIBLE

I DON'T WANT TO BE LOCKED DOWN WITH EXIT FEES

PREFER TALKING OVER THE PHONE THAN COMPLETING APP ONLINE

RELIES ON CONSULTANTS, DID NOT CARE ABOUT TYPE OF FINANCE SHE WOULD HAVE

RE-IND CAR, I WANTED TO LOWER MY REPAYMENTS & I WANTED A BIGGER CAR

CAME BACK TO STRATTON BECAUSE ALL DETAILS/MPO ENTERED SWD

TIME IS MY MOST VALUABLE RESOURCE

I KNOW WHAT I WANT TO BUY, THIS IS WHAT I WANT TO KEEP MY PAYMENTS AT

I ONLY CONSIDERED BUYING FROM A DEALER WHO LET ME DO A TEST DRIVE

PAIN POINTS

HAD A HARD TIME READING SMALL TEXT

DIDN'T BUY IN THE END, THE DEAL WITH KIA WASN'T SUFFICIENT. LOW TRADE IN VALUE

AWARE FINANCIAL LANDSCAPE IS ALWAYS CHANGING

FINANCING, I'M SELF EMPLOYED. IT'S OFTEN COMPLICATED IN RELATION TO FINANCE

RE-FINANCE CAR/LEASE AGREEMENT, HOW DO YOU FAIRLY CALL THEM PRICES?

DEALERS OBNOXIOUS. THEY WANT ME TO COMMIT TO CAR BEFORE SPEAK TO ME

'LET'S RECONSIDER CONFIRM FIRST, THEN WE TALK FINANCE'

HAD TO DEAL WITH MULTIPLE CONSULTANTS. THE FIRST GUY LEFT

CONSULTANT DID NOT RELAY BACK IMPORTANT INFO. YOU POCLOSED ON BEING FAST

UPSET; MONEY WITHDRAWN FROM HER CARD EARLIER THAN WAS NEGOTIATED

I CAN'T TELL YOU I WOULD USE STRATTON AGAIN

DISLIKED PUSHY SALES CONSULTANTS

EVEN THOUGH THE DEALER SHIP ORDERED ME A BETTER INTEREST RATE DIDN'T WANT TO DEAL WITH HIM

JUST DON'T MAKE ME JUMP THROUGH ALL THE APPROVALS

BEHIND SCHEDULE, WASTING MY TIME. I HOPED UP IN A CONTRACT THAT DIDN'T REFLECT MY GOALS

SKETCHY OF CERTAIN Q. BEING ASKED.

**Figure 5**

## Why is customer service sub-standard?



Human Resource Issues	Lack of standard processes and measurement	Workplace culture	Resources and tools
Too much turnover	No standard systems	Not enough management support	There aren't enough phone lines
Untrained staff	There's no measurement for what is and what isn't good service	Staff feel unappreciated	
Staff aren't compensated enough		Staff morale is low	



# The study of EMR system

- Problems identified;
  - Admin. status is not updated
  - Medication status is not updated
  - Medical procedures are circumvented
  - Medical documentation is multipronged

# Diagnostic mapping

PROBLEM	CAUSES	CONSEQUENCES	IDEAS FOR SOLUTIONS
ADMINISTRATION STATUS OF MED. IS NOT UPDATED	USER IS NOT FORCED TO DO IT	OUTDATED MED. SHOWN AS ACTUAL MED.	REQUIRED/FORCED UPDATE WHEN PT. IS HOSPITALIZED AND DISCHARGED
	NURSE CANNOT RECORD MEDICATION AFTER UPDATE	PATIENT GET NO/WRONG MEDICATION	NEW PROCEDURES FOR UPDATING ADM. STATUS
		NURSE CANNOT	MORE



Thank you and Best of Luck