

Process Book

2a

Qin Lu

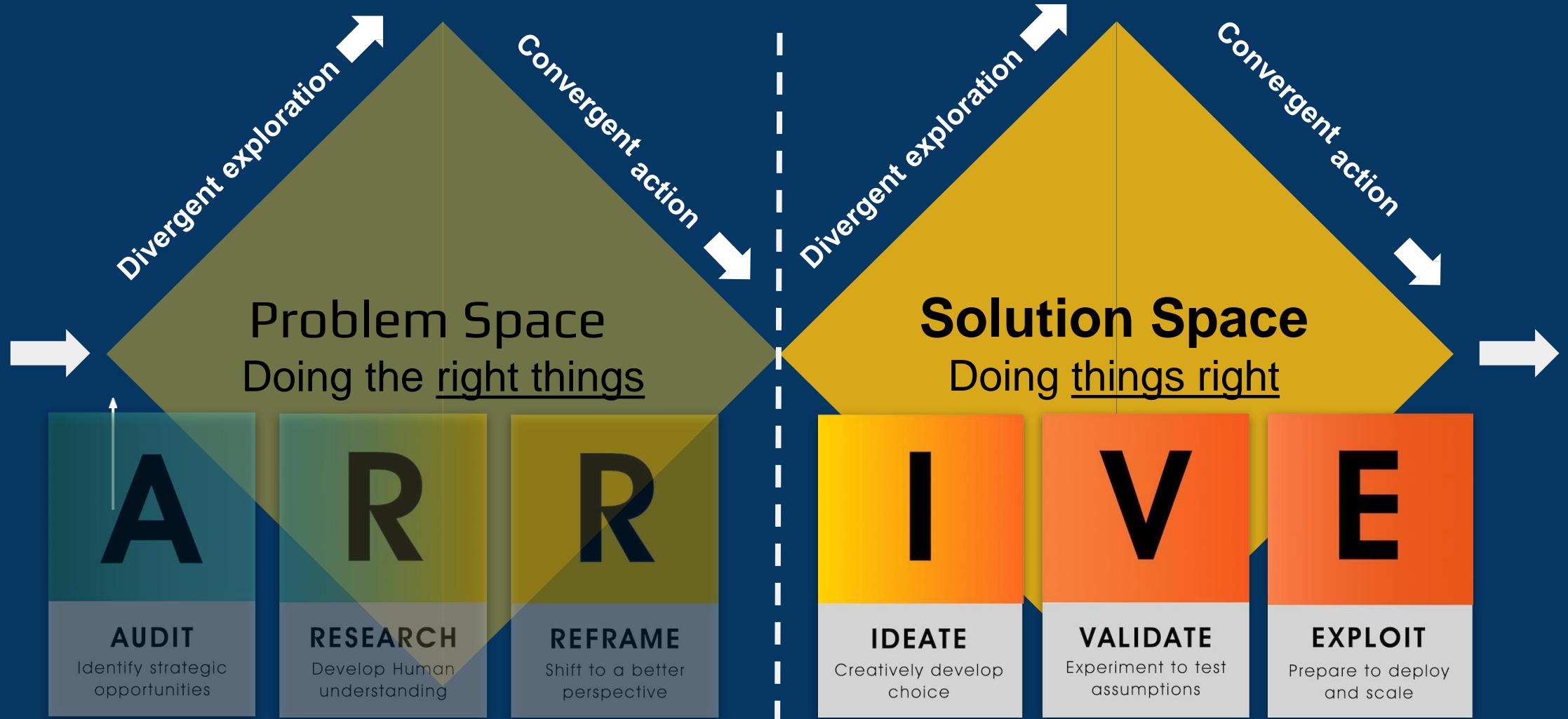


PD622A

Robot Design & Innovation

PD618A

Design Innovation Lab





R

REFRAME

Shift to a better perspective

Reframe Phase

According to audit and research in last stage, the corresponding three main insights, listed in order of importance, are as follows.

Key Takeaways:

- **Communication and Relationship are the most vital key**

- Between hospitals, HSE and Bayada
- Between internal employees in Bayada
- Between nurses and client families

- **The shortage of nurses is the underlying root cause**

- Lead to overloaded scheduling
- Result in sick leave challenge
- Have to recruit international nurses who have less knowledge of local culture etc.

- **The inefficiency of the existing app and training system, and the insufficient enforcement of pushing app into using**

- Difficulties in using existing app (Alaya), especially for old nurses
- Limited training of inadequate quality provided in training system
- Almost no one use the app, even some use it, but no one give feedback or support



Persona



Name: Barry Smith
Age: 34
Occupation: Consultant
Home: Dublin, Ireland

About user:

Barry is a dedicated husband, business owner & father to a 5 years old.

He describes himself as a father first & a consultant second. He wants to know he is making the right decisions for his family.

He & his wife work long, odd hours & they sometimes struggle to manage the childcare responsibilities between them.

Now his child has started primary school, they seem to be sick often. As a result, they have been to PED twice since Sept.

User quote:

"Building trust in home care can be challenging, but as parents, we are willing to make the effort to trust that the nurse assigned to us is responsible and professional."

Frustrations:

- Communication is a big problem.
- Relationship of trust is difficult to build.
- Feeling overwhelmed with information & decisions.
- Sometimes want to change care plan, but do not know how could it be.
- Privacy and security are another concern for us.

Goals:

- Could know everything about child.
- Communication is hoped to be easy.
- Pay more attention on privacy and security of clients.

POV Statement:

As a busy, anxious father of a young child,

I need to know everything about my child

Because she is our precious child.

Persona



Name: Anne Harrison

Age: 48

Occupation: Clinical Nurse Manager, Bayada

Home: Dublin, Ireland

About user:

Anne is a Clinical Nurse Manager in home care field, specializing in pediatric and general nursing. She manages cases in Dublin, Kildare, and Leitrim, overseeing the transition of children with complex medical needs from hospital to home care.

Anne's role involves matching nurses with patients based on expertise, ensuring nurses receive necessary training, and conducting risk assessments.

She prioritizes patient care, supports nurses, and manages communication with families etc.

User quote:

"I am passionate about seeing children leave hospital settings and return home, where they can be cared for by skilled nurses in a familiar environment."

Frustrations:

- Poor communication between hospitals, HSE, Bayada and client families.
- Lack of centralized, shared platforms to access more information.
- Shortages of nurses leads to a lot of problems.
- High reliance on part-time nurses, making scheduling complex.
- Burnout among nurses due to demanding night shifts and lack of sufficient rest.
- Tense relationships between nurses and families because of personality clashes.
- Families sometimes feel mismatched with assigned nurses.
- Some nurses, particularly international recruits, require additional training.
- Existing training systems are fragmented, with limited integration between hospital-based training and Bayada's protocols.
- Extensive travel requirements for managers to supervise dispersed patients.

Goals:

- Require a platform to access more information and communication between nurses and families.
- Need more nurses also including part-time nurses.
- Relationships between nurses and families are important to improve.
- International nurses need more training.
- Existing training systems need to be improved to easy and efficient to use.

POV Statement:

As a clinical nurse manager in Bayada,

I need a platform integrated access more information about client families and nursing management

Because we have loads of responsibilities to cover in the role which left us constantly scrambling to keep up.

Persona



Name: Marry Harrison

Age: 30

Occupation: Field Nurse, Bayada

Home: Dublin, Ireland

About user:

Marry was born and raised in Ireland and has worked in home care for 10 years. On her daily work days, she drives to clients' houses, which will make work a bit easier than other nurses who don't drive.

Despite having worked in the industry for over a decade, she remains deeply passionate about home care. In her daily work, she demonstrates diligence and responsibility.

She is one of the few willing to use the app, but with others choosing not to, her individual efforts alone prove ineffective.

User quote:

"Parents need to know everything about their child's care because he or she is their precious child. So, communication timely is very important."

Frustrations:

- Lack of effective communication in Bayada internally and also with client families.
- Never get feedback from management such as CNM after reporting important or emergency issues.
- Overworking puts pressure on nursing staff and lead to exhaustion.
- Inflexible in granting sick leave, which poses a serious risk, particularly when caring for vulnerable patients.
- Tense relationships with families, such as racial discrimination.
- A new app Alaya and process inefficiencies, leading to remain paper handover.

Goals:

- Need more details provided by client families and CNM and handover nurses.
- Hope that CNMs could give feedback at what they reported as importance and emergency.
- Require more nurses to relieve their overworking and sick leave challenge.
- Relationships with client families should be improved.
- The new app Alaya should be easier to use and management needing sufficient enforcement of pushing its usage.

POV Statement:

As a field nurse in Bayada,

I need to get more information about my client families and get feedback from CNMs and handover nurses

Because communication is very important, and we should put our clients first.

How Might We...

Amp up the good Maximize positive elements	How might we make the most out of the existing app to improve the onboarding process?
Remove the bad Remove the negative	How might we make the communication and relationship between CNMs, nurses and families better?
Explore the opposite Turn a negative into a positive	How might we use the current technologies to speed up processes?
Question an assumption Change something that seems mandatory	How might we encourage all involved roles to use the new technology app – Alaya?
Go after adjectives Use adjectives to be more specific & a whole lot more interesting	How might we use technology to release nurses and CNMs' overworking issues?
Identify unexpected resources Utilize unusual resources	How might we embed some intelligent algorithms into the existing app?
Create an analogy from need/context Other services can we learn from	How might we improve our onboarding process to extend our market to other groups, such as old people and the disabled etc.?
Change a status quo How can change/challenge a social/cultural convention?	How might we motivate nurses to work hard and encourage family members to cooperate effectively?



I

IDEATE

Creatively develop choice

Ideate phase

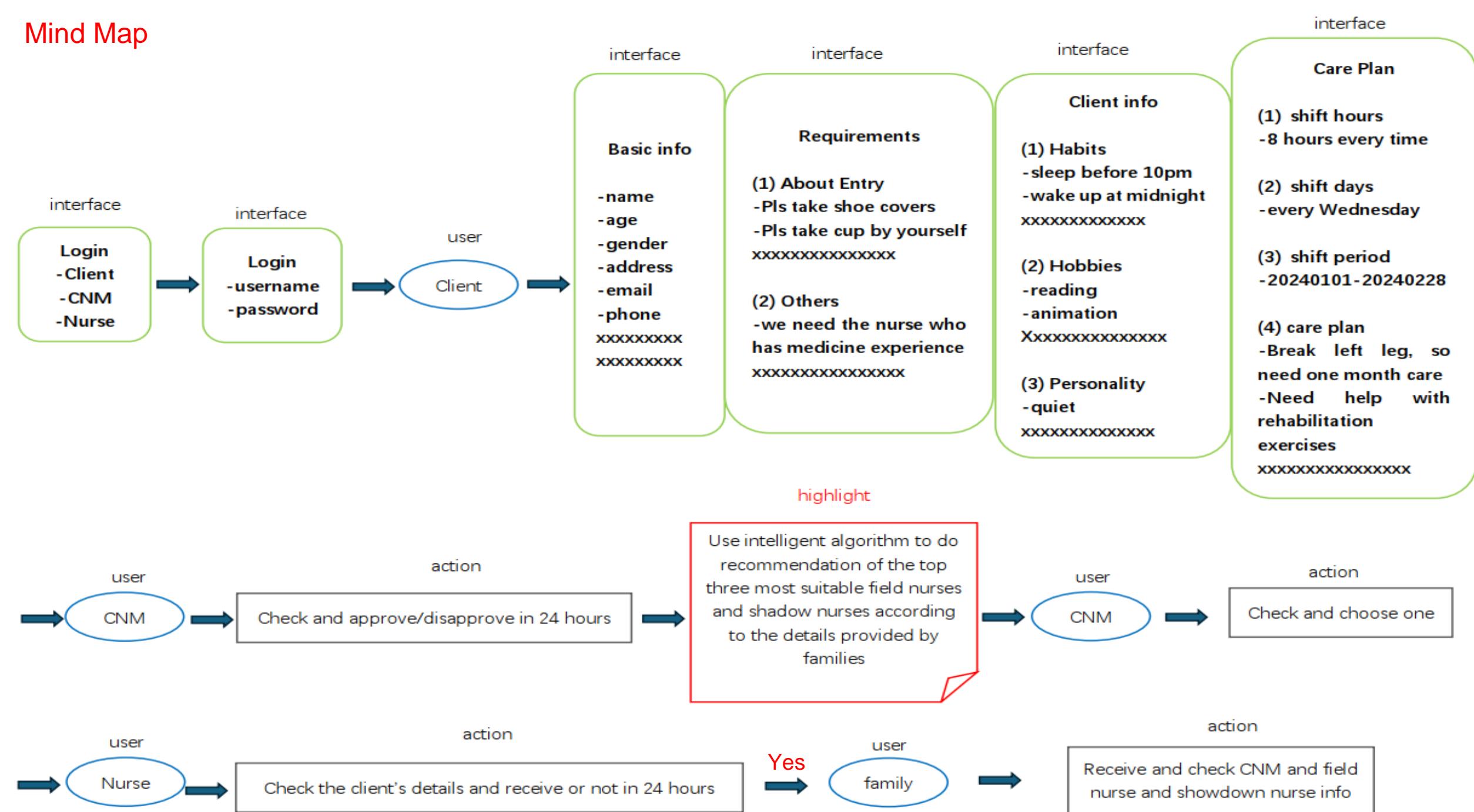
The ideal scenario is one where every individual fulfills their responsibilities, encompassing not only the daily offline care plan but also real-time updates and monitoring through the app, as well as client families could honestly provide info and are willing to trust nurses.

Key Takeaways:

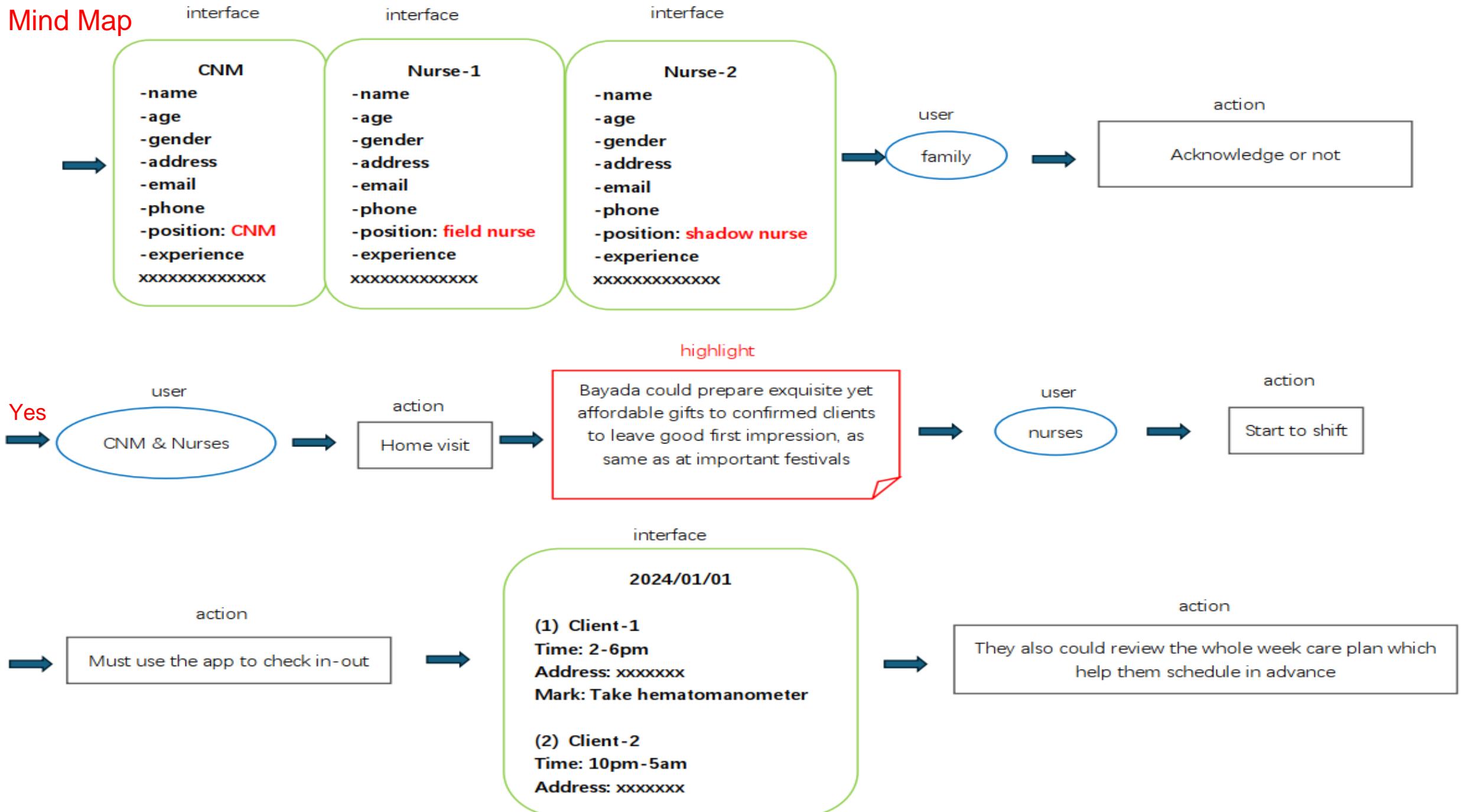
- Client families could provide detailed and important information in stages
 - CNM check or approve client's submission or application in 24 hours
 - Intelligent algorithm could recommend the most matched nurses according to client family's data, and CNM check it and decide one
 - Nurses review the client info and agree or disagree in 24 hours
 - Face-to-face meeting between CNM, nurses and client families
 - The client info is only open to the assigned nurses and CNM
 - Daily check-in and check-out and note or report in app, easy to transform
 - CNM and client families could check the daily working contents in app
 - Regular training video and live training provided to different levels of nurses etc.



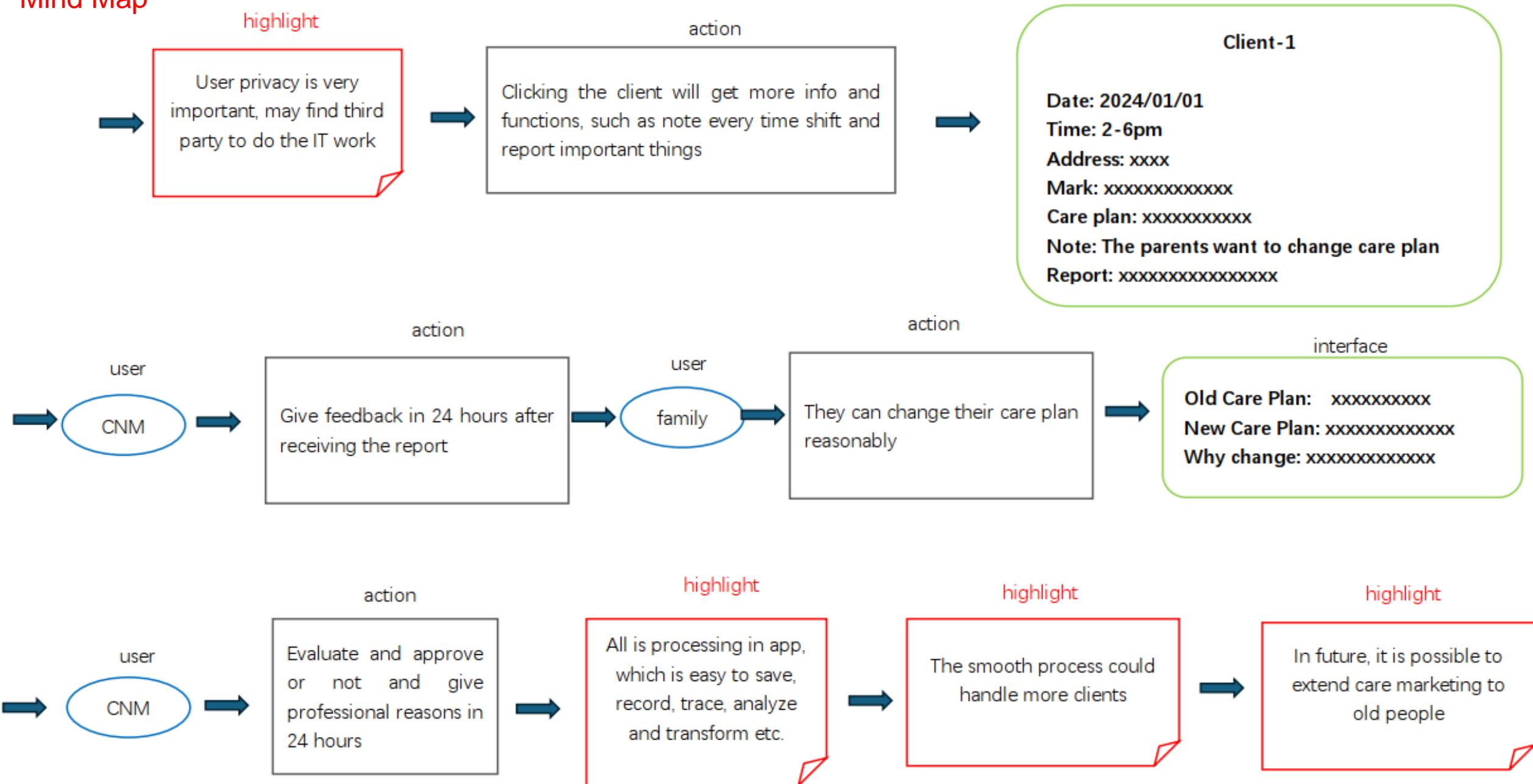
Mind Map



Mind Map



Mind Map



A close-up photograph of a young woman with blonde hair pulled back in a ponytail, wearing a red short-sleeved shirt. She is laughing heartily, with her mouth wide open showing her teeth. In the background, another person with long brown hair and a red shirt is partially visible.

V

VALIDATE

Experiment to test assumptions

Validate phase

Based on above details, the most important criterias may include:

- (1) CNM, nurses and client families **must use the app** to proceed daily work.
- (2) The app should be improved to **be easy to use**, especially for any levels of nursing staff, young or old, local or international etc.
- (3) The **privacy and security** of clients must be effectively ensured.

The reasons:

- Paper folders are difficult to save, record, search, trace and transform etc.
- Data in app is easier to do statistics and analysis, greatly benefit to extend marketing
- Make nurses and CNMs convenient to follow and time management
- Make information communication faster and more efficiently
- App is easy to be embedded more intelligent algrothims to alleviate the workloads of CNMs and nurses and promote bigger market opportunities etc.



Solution 1 - Enhancing the Existing App

Primary Users: CNMs, nurses, client families

Goal: A simple and user-friendly interface that is accessible to every user;

Details:

- **Improved Workflow:** Detailed in mind map parts
- **Alternative Input Methods:** For family users struggling with, the app could allow handwritten notes to be photographed and uploaded
- **Intelligent Recommendation Algorithm:**
 - Integrate an intelligent algorithm to recommend the top three most matched field nurses and shadow nurses based on user-provided data
 - CNMs retain the final decision, significantly reducing their workloads
 - It will minimize friction between nurses and client families

Feasibility:

We have the technology to implement these improvements. While Bayada would need to invest financially in IT development, the potential long-term benefits are substantial. Once this process is optimized, Bayada can expand its market greatly and accommodate more clients effectively.



Solution 1 - Enhancing the Existing App

Key Value Propositions:

- **Streamlined Communication:** By centralizing all work-related communication within the app, the process becomes smarter, reducing communication costs and significantly improving efficiency.
- **Data Optimization:** The app offers the immense benefits of permanent data storage, quick traceability, efficient data flow, and actionable analysis etc.
- **Workload Reduction:** By integrating advanced intelligent algorithms, the app lightens users' workloads, allowing them to focus more on professional home care. This, in turn, helps alleviate the nursing shortage to some extent.
- **Enhanced Problem-Solving:** Effectively addresses communication challenges and feedback gaps while mitigating many user concerns raised during audit and research parts.
- **Future-Proofing Care:** Enhancing the app ensures widespread adoption, paving the way for intelligent healthcare systems. With the app as the foundation, it becomes possible to integrate more advanced AI algorithms powered by comprehensive data.



Solution 2 - Personnel Improvements

Primary Users: nurses

Goal: Incentives and training foster a smoother onboarding process;

Details:

- **Internal Team Building:** Organize team-building activities within Bayada regularly to foster stronger internal collaboration.
- **Family-User Engagement:** Facilitate team-building activities between Bayada and family users to strengthen relationships and understanding and trust.
- **Incentive Programs:** Develop a well-structured incentive plans to motivate staff work hard and client families cooperate friendly.
- **Tailored Training Programs:** Provide customized training mechanisms to address the specific needs of different groups, such as international or part-time nurses etc.
- **A certification system for professional nurses and a salary increment mechanism:** encourage more nurses to advance toward specialized medical and healthcare roles with the salary rising.

Feasibility:

Bayada will need to allocate a budget for these initiatives, but the required financial investment is relatively modest.



Solution 2 - Personnel Improvements

Key Value Propositions:

- **Strengthened Relationships:** Foster more positive and collaborative relationships among colleagues and clients, helping to address communication challenges.
- **Enhanced Nursing Skills:** Provide comprehensive skill development for nurses, mitigating issues arising from the nursing shortage to some extent.
- **Cost-Effective Approach:** Compared to the other two solutions, this option requires relatively lower financial investment.



Solution 3 - Intelligent Care Robots

Primary Users: client families

Goal: A simple and user-friendly interface that is accessible to every user;

Details:

- **Target Use Case:** For family users who only require nighttime patient care without needing professional medical personnel, intelligent care robots present an effective solution.
- **Functionality:** These robots can perform basic caregiving tasks while enabling remote real-time monitoring by medical professionals. This setup allows a single healthcare worker to supervise multiple care robots during nighttime care.
- **Feasibility Analysis:** Before implementing this solution, it is crucial to analyze the family users.
- **Future Potential:** While the initial investment may outweigh the returns, this approach aligns with the forward-looking trend in intelligent healthcare.

Feasibility:

Our current technology is capable of achieving this, but the initial investment in manpower, resources, and finances is substantial. While it aligns with future development trends, it remains at the forefront of cutting-edge technology.



Solution 3 - Intelligent Care Robots

Key Value Propositions:

- **Alleviating Nurse Shortages:** Significantly mitigates issues associated with the nursing shortage.
- **Enhanced Trust and Reliability:** As robots lack emotions, families may find them more trustworthy and reliable, avoiding potential conflicts that can arise from personal dynamics with nurses.
- **Future-Oriented Innovation:** Aligns with the emerging trend of intelligent healthcare, allowing early adoption and experimentation.



Solution Selection

In my opinion, Solution 1 is the optimal choice compared to Solutions 2 and 3 in every aspect.

Regarding Solution 2: While developing skilled nurses is valuable, there is always the risk of job-hopping. Maintaining and enhancing the app, however, creates a unique and invaluable asset for Bayada.

Regarding Solution 3: Although intelligent care robots represent the future of healthcare, and being an early adopter could be advantageous, this solution imposes high demands on Bayada in terms of resources, manpower, and financial investment. Additionally, implementing Solution 3 effectively would require the foundational support provided by Solution 1.

Key Benefits of Solution 1:

- **Lower Initial Investment:** The manpower, resources, and financial input required are relatively modest. Typically, with a transition period of 3 to 12 months, the process can become fully operational.
- **High Long-Term Returns:** Once established, the benefits are substantial. By integrating intelligent AI algorithms, Solution 1 can reduce employee workload, alleviate issues related to nurse shortages, and significantly improve communication efficiency.
- **Market Expansion:** The improved app can help tap into a broader user market, including the elderly, individuals with disabilities, and patients requiring temporary medical care due to accidents.

In summary, Solution 1 provides immediate practical benefits while laying the groundwork for future advancements like those envisioned in Solution 3.



Thank You