

DIGITAL SKILLS AND RESEARCH METHODS: A CASE OF NHS

Speakers notes slide 1 :Title of Presentation

***DIGITAL SKILLS AND
RESEARCH METHODS: A CASE
OF NHS***

Presentation

Speaker notes slide 2 consist of the name of the group members, their students ID's and the tasks which they have completed.

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Name of the Student	Student's ID	Topic
1.Lacramioara Voiasciuc	1916152	Introduction
2.Viorel Dinu	1905713	Background of Nhs Conclouion&references
3.Daniel Ionita	1905712	Challenges before introducing Modern Technology
4.Mirela Bajinaru	1916154	Insights of Modern Technology Introduced Impacts of Modern Technology Lessons drawn from the case study

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Introduction

- This presentation attempts to provide a brief overview of National Health services (NHS) UK, under the light of Modern Technology
- It also aims to provide an understanding of the challenges faced in medical services prior to incorporating modern technology.

Introduction

This report attempts to provide a brief overview of National Health services (NHS) UK, under the light of Modern Technology. It also aims to create an understanding of the challenges faced in medical services prior to incorporating modern technology. Lastly, this report will provide a picture of NHS improving their operations with the aid of **Chatbots**.

Speaker notes slide 5&6 content background of the organisation

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Background of the Organisation

- It is a publicly funded health care organisation of UK
- It was formed back in the year 1948 and their services include offering comprehensive varieties of health care services
- It consists of National Health Service in England, NHS Scotland, NHS Wales and Health and Social Care in Northern England



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Background of the Organisation

- **Main Purpose:** The main purpose of the organisation is to provide healthcare services to people of UK at a very minimal cost
- **Mission and Vision:** NHS is on a mission to provide the best quality of care to the people seeking for medical help. On the other hand the vision of NHS is to help people survive from various diseases and ensure a healthy society.
- **Current Status of Services and Organisation:** At present NHS is trying to incorporate various modern technology for ensuring all the medical procedures and services are on a top notch level in terms of quality and efficiency. This will enable the organisation to reduce errors and complicated scenarios in case of patients as well.

Background of the organisation

A publicly funded health care organisation of UK, National Health Service (NHS) is build upon four different systems that serves in various parts of UK. It consists of **National Health Service**

in England, NHS Scotland, NHS Wales and Health and Social Care in Northern England. It was formed **back in the year 1948** and their services include offering comprehensive varieties of health care services. Launched by *Anuerin Bevan, the Minister of Health in Attlee's post war government*, NHS is funded by the taxpayers of UK. The treatments, appointments and other facilities are free for the patients at the time of need, as every individual is already charged that amount by means of taxation (Moran *et al.* 2018).

Main Purpose: The Government of UK also funds the medical and health care organisation, NHS, so that everyone residing in the country can avail such services, while not being asked to pay the entire cost.

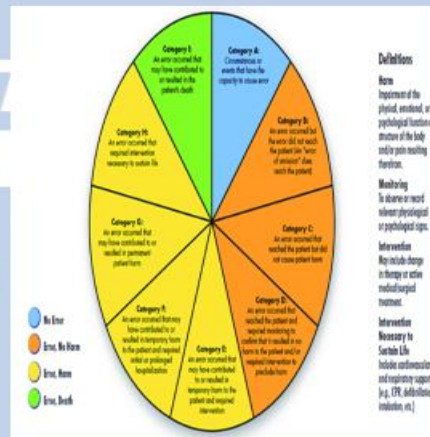
Mission and Vision: The core mission of **NHS** is to make commitment to offer best quality care and ensure that the *safety, managerial integrity, communication and confidentiality* of the organisation are clear. In addition to that, the organisation has the vision of helping people who are stricken by any kind of medical problems in a proper manner, to help save the human beings and keep them healthy.

Current Status of Services and Organisation: At present NHS is trying to incorporate various modern technology for ensuring all the medical procedures and services are on a top notch level in terms of quality and efficiency. This will enable the organisation to reduce errors and complicated scenarios in case of patients as well.

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Challenges Faced Before

- The most common problem at present, are the errors of medication taking place in the health care sector and the organisations
- The data by Institute of Medicine shows that nearly 1,00,000 people are reported to face medication error and thus, due to such medication error, the number of fatal cases in the world has risen (Terry, 2017)



Speaker notes slide 7,8,9 shows Challenges before introducing Modern Technology

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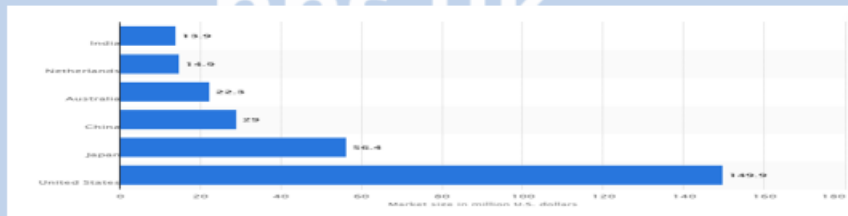
Challenges Faced Before

- NHS has observed that due to such dissatisfaction issues, the amount of patient safety has been decreased and the number of cases of medical errors have risen up to 20 per month
- The number of cases of accidental death of patients has also increased in NHS due to lack of proper modern equipments and taking too much time to diagnose a patient history (Schenker and Costa, 2019)

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Challenges Faced Before Cont.

- People may not every time disclose their previous history of treatment or may have lost their prescriptions
- It is also seen that not doctors are unable to handle each patient and offer correct information to them every time (Henriksen *et al.* 2018)
- The doctors are failing to provide patient-specific medicine that can ensure effectiveness and treat diseases in less time



Challenges before introduction of modern technology

The most common problem at present, are the errors taking place in the health care sector and the organisations. Data collected regarding this issue, shows that per year around more *than 3 million people become victims of medication error*. To deal with such caused errors, the health care organisations like NHS have to bear with additional compensatory charges of around **\$3.8 billion per annum**. The data by **Institute of Medicine** shows that nearly *1, 00,000 people are reported to face medication error* and thus, due to such medication error, the number of fatal cases in the world has risen (Terry, 2017). In NHS, the people who come for treatment may not, every time

disclose their previous history of treatment or may have lost their prescriptions, which prevents them to provide their pre-medication history. In UK, there is high prevalence of allergic conditions resulting *in more than 25% people* to be affected by wrong prescription of medicines that are causing allergic disorder (Fisher *et al.* 2018). Around *52% of the British adults suffer from allergic reactions* and there rises issues in offering the correct medicine to them at the right time. There are patients who are visiting **NHS** with critical conditions, where they need to be treated at the earliest. In that case, if at first a thorough medical checkup is conducted, and thereafter based on that, treatment is provided to patients, the cases may turn out to be fatal due to delay.

On the other hand, in **NHS**, it is seen that not every time doctors are able to handle each patient and offer correct information to them. This is a serious disadvantage on the part of the organisation, as using *manual labour disrupts the health care system of NHS*. People who need urgent appointments and require answers about typical queries regarding health are not getting such aid due to unavailability of doctors and health care experts at the right hour. **NHS** needs to change their health care system, as the demands of the patients and expectations regarding receiving of services are changing constantly with the influence of technology (Henriksen *et al.* 2018). Such inefficient system *is causing the cost of the health care facilities to rise*, as in case a patient is not treated correctly, he is re-treated the next time thereby causing more costs and time. The doctors are failing to provide patient-specific medicine that can ensure effectiveness and treat diseases in less time. No *individual is willing to spend majority of their time using manual equipments and facilities* for treating their health care issues. They are opting for using fast solutions and technologies that can serve them in less time and offer results, which are exact and appropriate.

NHS has observed that due to such dissatisfaction issues, the amount of patient safety has been decreased and the number of cases of medical errors have risen up *to 20 per month*. This has thereby, resulted in weakening the interaction level between the patients and the health care service provider of the organisation. The number of cases of accidental death of patients has also increased in **NHS** due to lack of proper modern equipments and taking too much time to diagnose a patient history (Schenker and Costa, 2019). The *delay in treating patients and inefficiency in prescribing the correct medicine* is leading to such increase in number of death cases. The doctors, though many in number, are sometimes unable to keep record of accomplishment of the huge number of patients visiting them for treatments. This is *leading to faulty treatments, as due to non-tracking*

and proper preservation of patient history and facts, the service quality level of **NHS** is deteriorating leading many patients to shift to other organisation for treatments .
Insight of modern technology introduced

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Insights of the Modern Technology

- **Concept of chatbot:** A chatbot is known to be a computer operated program that can simulate human conversation by means of text chat or voice commands both. (Sciarrett and Alimenti, 2019).
- **Characteristic of chatbots:** Chatbot are in the *early phases of its implementation* responsible in *checking the symptoms of the patients in regular languages and helps a user to diagnose the problem.*
- **Models of chatbot:** Generative and Retrieval

Speaker notes slide 10,11 shows the content of insights of Modern Technology Introduced

Concept of chatbot

A chatbot is known to be a computer operated program that can simulate human conversation by means of text chat or voice commands both. This is an artificial intelligence feature that can be embedded or used by means of any major messaging applications (Sciarrett and Alimenti, 2019).

Characteristic of chatbots

Chatbot nowadays are being adopted by the healthcare industry gradually and is evident to be in the ***early phases of its implementation***. Healthcare can now be considered as the attractive market to the companies that are responsible for developing the chatbot application for the practitioners as well as the patients. The chatbots are responsible in *checking the symptoms of the patients in regular languages and helps a user to diagnose* as per the symptoms provided by them to the application (Sciarrett and Alimenti, 2019).

Models of chatbot

There are two models of chatbot, ***Generative and retrieval*** based (Basile *et al.* 2019). The ***generative model*** of chatbot does not make use of the predefined repository. It is the most advanced form of chatbot model that make use of the deep learning to respond to the queries. On the other hand, ***retrieval model*** based chatbot contains the repository responses and uses it in solving the queries made by the user. In such circumstances the user has to choose a response based on the question to which the chatbot will comply with.

Advantages of chatbots

As opined by Yorita *et al.* (2019), the adoption of chatbot in ***NHS*** has helped the business to enjoy a surge because of the omnipresence of several messaging applications. These platforms is therefore been used by ***NHS*** platforms to bridge the gap between the online and the offline experiences of the user. The ***buildings of chatbots*** over these platforms are ***therefore leveraging the ability of this healthcare sector*** to engage with their user in a better way of the conversational setting. These would therefore not only help in delivering the accurate suggestions but also provide the hospital with ample opportunities in the near future.

Disadvantages of chatbots

The chatbot is often known to be complex interface that requires lot of time to understand the need of the user. The poor processing of the system do not have the ability to filter the result which may sometime annoy people. As the programs are fixed in the chatbots, therefore the user often seems to stuck with the queries that are not preloaded to the system. The chatbots are often very time consuming that has eventually added to the dissatisfaction of the consumers.

Importance of chatbots

This chatbots are nowadays replacing the customer service over the phone call base. The healthcare industry is adopting chatbots instead to help the patients to resolve the concerns a way faster than the traditional methods. This *would let the healthcare sector to keep their patients at the top priority and would also help the patient in making better decision.* The implementation of chatbots within the healthcare has the ***tendency of accelerating the leap that would add values to the patients*** in healthcare. The chatbots within the healthcare seems to offer the best service in the

health care. The **smart chatbots** in the healthcare seems to schedule the follow up instantaneously. The chatbots offer distinct automatic interaction session along with experience of quality care. **Chatbot is way more than providing of 24*7 customer service** as it seems to assess its patients with the processing of each and every service request as quick as possible (Sciarrett and Alimenti, 2019). The chatbots are responsible in providing personalised medical care to its patients and at the same time remind them with the appointments and the medication schedules. They are usually the **virtual assistant** that guides the patients in all their medical forms.

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Insights of the Modern Technology Cont.

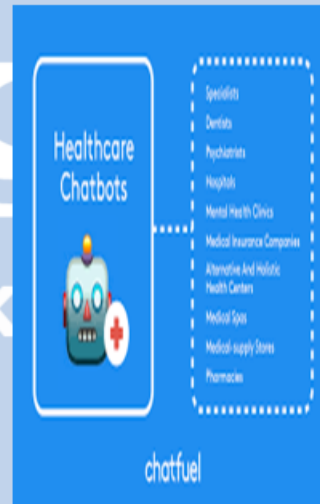
- **Importance of chatbots:** Chatbots are much faster than traditional diagnosis or patient attending processes. This helps the healthcare organisations to treat more patients efficiently. The chatbots are providing personalised medical care to its patients and at the same time remind them with the appointments and the medication schedules (Sciarrett and Alimenti, 2019)
- **Advantages of chatbots:** Chatbots can help to improve the operations of the healthcare organisations by helping to provide immediate and accurate diagnosis
- **Disadvantages of chatbots:** The complexity of the Chatbots can deter people and organisations to use them in case of healthcare and personal care services

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Impacts of Modern Technology

Positive Impacts of Chatbots

- Chatbots help in scheduling of the appointments and answer to some typical questions that generally hold up the job of a hospital administrator (Laumer *et al.* 2019)
- In addition to that, Chatbots can remind the patients of timely medicine intake or checkups
- Another positive aspect is that Chatbots can act as monitoring systems for the elderly people



Speaker notes slide 12,13 shows the content of positive and negative Impacts of Modern Technology.

Impacts of modern technology

It is evident that few of the chatbots like, your.md, buoy health, infermedica, sensely seemed to have gained the trust of people by giving them the accurate results regarding their health concern. This can be depicted as one of the positive side of technology within the healthcare and same in the life of the people. As said by Fang and Bjering (2019), the use of chatbots within **NHS** has helped millions of people in tackling their health issues by giving them support with proper guidance. The chatbots has helped the doctors, patients and nurses numerous times in giving better healthcare. The proper implementation of chatbots in **NHS** has made a remarkable difference in providing the patients with optimum support. The chatbot has helped its visitors by providing them with various information related to the hospital. It has provided information regarding **doctors, departments, and careers, booking an appointment and a lot more**. This chatbot is created over a Floatbot-chatbot platform where the system is capable of understanding the queries that are raised by the user related to **appointment, disease, career** and many more and seems to get an appropriate response accordingly.

Positive impacts

Chatbot often acts as the hospital administrator. It helps in scheduling of the appointments and answer to some typical questions that generally hold up the job of a hospital administrator. The chatbot in this regard can perform the task more easily by collecting the user request and scheduling of the doctors visit as well as answering of simple questions. The user will not have to go the hospitals to solve certain problems; instead they can just open a mobile application or a web app to address to their problem. These chatbots on the other hand will also remind the patients about their upcoming check up or appointment, collecting feedback, advertise healthcare business and checking up of the health conditions too (Laumer *et al.* 2019).

Chatbots can often be used as healthcare consultant. Worrying about health is quite natural. People seem to queries regarding health issues which can be major to minor. In order to answer their question, a health care practitioner must be there. Chatbots in this scenario will help the user and will guide them regarding their health issues. This will particularly help the patients suffering from chronic diseases like, ***asthma, diabetes, HIV and so on***(Bates, 2019) .

Chatbot can also be a self-care coach for an individual. It is often used in *counting the calories, monitoring of the amount of water consumed, keeping up of the records of sleeping and exercising routine and so on.* The chatbots also suggests is user with *healthy food recipes; remind the user to take medicine and advice the user to visit doctor if necessary* (Bates, 2019). The chatbots in addition to this send *motivational and inspirational quotes to its user to boost up the self-esteem and mood.* Though it cannot be a substitute of medical care, but can easily be a ***coach of holistic self-care.***

Chatbot can also acts as an elderly care provider. The voice application development n chatbot will help the ***elderly patient communicate*** with their medical professionals over voice application. This certain application seems to target a specific age group or community where communication becomes this easy. The application is not only important for the elderly patients, but will also provide an additional care to the ***patients with visual impairment.***

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Impacts of Modern technology Cont.

Negative Impacts of Chatbots

- There is the possibility of system malfunction, which can make Chatbots erroneous
- Chatbots can be hacked easily, thus making the elderly reveal their personal data to hackers
- The Chatbots can be complicated and mechanical for a great majority of people, especially for the older people.

Negative impact of chatbot

Besides the positive use, Chatbot has various negative impact too. The technology seems to have **higher error rate**. As being a software system they cannot capture variation of human conversation. The system is **not that reliable** as it shows. The advanced machine learning concepts has tried imitating the conversation of human but the hackers on the other end could easily convince user to share personal information. As said by Bjering (2019), The **chatbots are way too mechanical**. As it is pre organised by the developers, it can answer to the queries that goes to the right path. The performance seems to get affected if there is no prior information loaded regarding certain concept.

Lesson drawn from the case study

Speaker notes slide 14,15 shows the content of drawn lessons from the case study.

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Lessons Drawn From the Case Study Cont.

- The *use of modern technology has been highlighted in this presentation*, and **Chatbots** used by medical organisations is a stellar example in this regards
- This lesion also points the advantages of the Chatbots, such as working as healthcare assistants or looking after the elderly patients (Yorita *et al.* 2019)

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Lessons Drawn From the Case Study Cont.

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With the aid of this case study of **National Health Services**, it can be isolated that organisations operating within the healthcare services industry are often faced with *sever issue of medication errors*. This can be either a result of *ignorance of careless attitude of the patients* or can be an immediate result of the *errors caused by medical institutions and people working in them*. In the case of patients, error can take place because of losing previous prescriptions or consuming the wrong medicine. On the other hand, the human error can occur for the health care workers after working for long and tiresome shifts (Henriksen *et al.* 2018).

Hence, this issue proves as a major problem in the modern world as it can deteriorate the condition of a patient or even cause death. Another problem is that, medical organisations have to pay huge compensations in case the condition of a patient gets worse due to medication errors. There is also the loss of reputation for the healthcare workers and the organisation they are working for. In order to avoid such situations, the *use of modern technology has been highlighted in this report*, and **Chatbots** used by medical organisations is a stellar example in this regards (Yorita *et al.* 2019). This lesion also points the advantages of the **Chatbots**, such as working as healthcare assistants or looking after the elderly patients.

Conclusion

- With the help of this presentation a better idea will be formed regarding the challenges faced by medical services in general and NHS in particular
- This presentation has the capacity to highlight the beneficial aspects of modern technology in terms of healthcare services

Speaker notes slide 16 is the conclusion

Conclusion

With the help of this report, a better idea will be formed regarding the challenges faced by medical services in general and NHS in particular. This report has the capacity to highlight the beneficial aspects of modern technology in terms of healthcare services. Therefore, **Chatbots** are proving to be of great benefit in modern world.

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Speaker notes slide17 shows the references

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