



Digital Technology in Health and Care

Introduction to Information Systems and Information Technologies in Health and Social care

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Personal introduction



Lecturer in Health & Care informatics, UWTSD

Education

- Bachelor in Dental Surgery 2010
- MPH major in epidemiology 2014
- MSc In Health Informatics University of Leeds, 2016
- PhD in Information Studies (Social) University of Sheffield, Part-time, On course

Work

- Dental Surgeon (2010-2011) part-time (2011-2012) full time (2012-2014 part-time)
- Teaching Assistant (2012-2014) (part-time): Taught Masters and Executive master's students in MPH Programme
- Dental Surgeon (2016-2017) Part-time
- Teaching Assistant: University of Sheffield (2018-2022) Part-time: Taught and mentored Undergraduate, Postgraduate and PhD students.

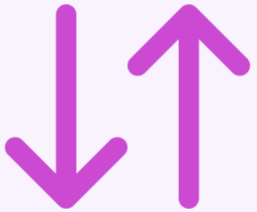
Learning outcomes

1. Initial understanding of key terms and Definitions
2. Differences between information systems and information technology
3. Understanding digitalization
4. Information technology trends and road towards digital health and social care
(Revolution in Healthcare Industry)

Key Terms and Definitions

- **Data:** consists of facts. Facts are observations or measurements of the world. E.g. “Piriton is a drug” “Antihistamine relieves allergy”
- **Knowledge:** Defines relationships among data. E.g. Piriton is an antihistamine
- **Information:** obtained by applying knowledge to data. “Piriton should not be prescribed to a lactating mother”

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Rank them in the following order (Data > Knowledge > Information)

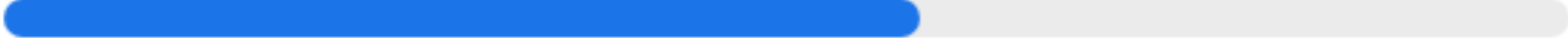
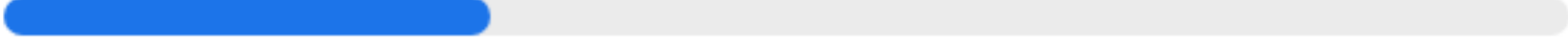


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Rank them in the following order (Data > Knowledge > Information)

29 ...

1. Penicillin is a drug
 3.79
2. Penicillin is an antibiotic
 2.79
3. Antibiotic Kills Bacteria
 2.28
4. Penicillin cannot be prescribed if a patient is having a viral infection
 1.14

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Is Information systems synonymous with Information Technology?



Is Information systems synonymous with Information Technology?

29



Yes



7%

No



93%

Information system (IS) and Information and communication technology (ICT)

IS is a combination of several components

- The **tasks** that individuals wish to undertake (informed by specific needs and requirements); e.g. sending medical information.
- The **People** who would do the task (truly a process of becoming part); e.g. GP
- The **social and organisational structure** within which an IS is established (e.g. a firm, a factory, a government department). E.g DHCW
- The **ICT** that helps to complete the task (Hardware, Software, Network, Data)

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Which of the following is/are the component (s) of an IS?

ⓘ Start presenting to display the poll results on this slide.



Which of the following is/are the component (s) of an IS?

26



DHCW



N3



Govroam



Email



Software engineer



Laptop



NHS Smart Card/ID Card



X-ray



GP



Welsh clinical portal



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Which of the following is/are ICT?

ⓘ Start presenting to display the poll results on this slide.



Which of the following is/are IT?

26



N3



69%

NHSmial



85%

DHCW



27%

Ipadmini



96%

Welsh Clinical Portal



73%

X-Ray



54%

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Which of the following (s) is/are IS?

ⓘ Start presenting to display the poll results on this slide.



Which of the following (s) is/are IS?

24



Electronic patient Record



N3



Choose and book



X-ray



Govroam



Iphone 14



Welsh Clinical Portal



NHSmail



A Holistic View of IS

IS are in part social (about people and human organisations) and
in part technical (Digital technology is applied to specific tasks);

Why Digitalisation in Health & Social Care?

- Time efficient
- Cost efficient
- Improve the quality of care
- Reduce Medical Error

Why now?

- Easily Accessible
- Cheap
- More powerful

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**Is Digitalisation synonymous with
Digitisation?**

① Start presenting to display the poll results on this slide.



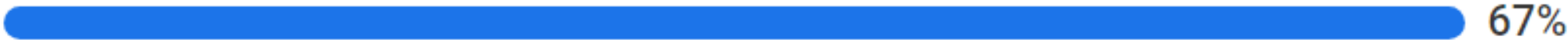
Is Digitalisation synonymous with digitisation?

27 ...

Yes



No



Digitisation Vs Digitalisation



DIGITALISATION of Health Record

Electronically Create, store and exchange health-related information (prescription, pathology report, letter, Receipts etc).

DIGITISATION of Health Record

Creating electronic copies by Scanning Paper Documents (prescriptions, pathology reports, letters, Receipts etc) converting them into PDFs, and storing and exchanging them electronically.

Why Up to date knowledge on IS Important?

“The root of our problems is not that we’re in a Great Recession, or a Great Stagnation, but rather that we are in the early throes of a Great Restructuring. Our technologies are racing ahead but many of our skills and organisations are lagging behind”

(Brynjolfsson, E. and McAfee, A. (2011))

Why Up to date knowledge on IS Important?

The latest phase of computers and the internet have created three shifts in how work happens:

- The first is artificial intelligence (AI): a move from man to machine (e.g. self-driving cars, online translation);
- The second is a shift from products to platforms (such as Facebook, Alibaba, Airbnb);
- The third shift is from the core to the crowd. The core refers to centralized institutions (e.g. central banks, Encyclopedia Britannica). The crowd refers to decentralized, self-organizing participants

Brynjolfsson and McAfee (2017)

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References

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