Lesson plan

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| **Topic 2 Impact of threats to data, information and systems** |
| Learning Objectives:* Describe the impact of threats to data, information and systems
	+ On individuals
	+ On organisations
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| Content |
| StarterPowerPoint Guide: Topic 2 Impact of threatsThe starter considers the consequences of identity theft. One example given tells the story of a woman who looked at her and her husband’s joint credit card bill and was horrified at what she saw. You can read more about the story here: <https://www.forbes.com/sites/vanessamcgrady/2016/10/18/idtheft/#79abe4fe790f> MainData held by organisationsData is held by numerous organisations. Ask students to name others to those listed that hold data about them. They may wish to name specific organisations.Impact of phishing attacksPhishing attacks, discussed in the last lesson, are often used to perpetrate identity theft and fraud. They are very common, and cost organisations millions of pounds each year. For more information and statistics see: [https://www.keepnetlabs.com/phishing-statistics-you-need-to-know-to-protect-your-organization/](https://www.keepnetlabs.com/phishing-statistics-you-need-to-know-to-protect-your-organization/?gclid=EAIaIQobChMI2q236ZSA3QIVqL_tCh2WBwoTEAAYAyAAEgKlTfD_BwE) Identity fraudThis slide details some of the uses that a fraudster may make of a stolen ID. Go over each of them. Ask students to consider how much information would be required to carry out the given fraud.Detecting identity fraud and consequencesPeople often do not realise that they have been a victim of identity theft and fraud until well after the event. Identity theft can have very serious consequences, such as a fraudster opening an account in your name or using your credit card details to place orders for goods online. They may take out loans in your name and not repay the loan, leading to a poor credit rating, making it difficult for people to get a mortgage. Hand out **Worksheet 2** and ask students to complete **Task 1** and **Task 2**.Topic 2 Worksheet 2Topic 2 Worksheet 2 AnswersEffect on the victimTake students through the emotional and other effects described.Threats to organisationsLoss, corruption or theft of data can have very severe consequences for an organisation.Financial impact of data lossBoth accidental damage and criminal activity (e.g. cyber breaches resulting in loss or theft of data) commonly result in serious financial loss.Interesting statistics on the consequences of data loss can be found at: <https://centretechnologies.com/data-loss-statistics-that-will-make-you-think-twice-about-business-continuity/> Who is targeted by cyber criminals?Organisations, large and small, and also individuals are targeted and collectively suffer enormous lossesThreats to system securityRemind students of the threats to system security which the learnt about in the last topic. This can be used to review specific types of malware and the meanings of hacking and phishing.Impact of cyber breachesAs well as the immediate impact of fines and costs involved in improving security, they may have to pay compensation to customers, lose customers, suffer disruption and loss of reputation. Ask students for further impacts on organisations and individuals and go through the following two slides that discuss possible answers.Further information regarding data breach effects can be found at:<https://www.itgovernance.co.uk/blog/the-damaging-after-effects-of-a-data-breach/> A survey of 1,519 businesses and 569 charities carried out in 2018 gives some interesting statistics on cyber security breaches.<https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/702074/Cyber_Security_Breaches_Survey_2018_-_Main_Report.pdf>Case study: TalkTalkThis slide describes the consequences of a serious data breach to the company and to their customers. A further consequence to the company was that thousands of customers switched from TalkTalk to another provider. In 2017, they recorded a £27 million loss.Financial impact of data loss and accidental lossGo through these slides which discuss losses due to natural disaster and accidents. These should be carefully considered by both individuals and organisations based on the likelihood of them happening. Earthquakes, for example are common in countries such as Japan. Play students a short video showing a server room in Sendai during the Tōhoku earthquake in 2011. The video camera is moving with the building whilst the servers remain stationary.Ask students to complete **Task 3** and **Task 4** on **Worksheet 2**.Computer spywareSpyware, Denial of Service attacks and ransomware are covered in the remaining slides. These have already been discussed in Topic 1. In this topic the focus changes to the impact on organisations and individuals. Ask students of the impact of spyware on both individuals and organisations. Some answers are given on the following slide.Denial of Service (DoS) attacksTake students through the slide and then the case study of a DDoS attack that occurred in 2015 on the BBC’s websites. At its peak, the attack was sending 602 Gbps of data to the BBC’s web servers. For comparison this is equivalent to sending more than 100,000 copies of the complete works of Shakespeare to the servers every second to process and respond to.Other organisations that have suffered from this type of attack include Lloyds Banking group, HSBC, Halifax and Bank of Scotland.Show <https://www.digitalattackmap.com> to students so that they can see the magnitude of ongoing attacks that need to be defended against at the moment and in history.Ask students to complete **Task 5** on **Worksheet 2**.Ransomware and ransomware impactsThis is a form of attack in which the user cannot access their data, which has typically been encrypted by the perpetrator, until a ransom is paid. The effects of this type of attack are given.Case study: WannaCryWannaCry was a severe ransomware attack. It particularly affected the NHS and shows the affect of computers not being correctly patched or not being upgraded to operating systems where security patches are provided.Ask students to complete **Task 5** on **Worksheet 2**.PlenaryAsk students to review the impacts to individuals and organisations with the activity given.Hand out Homework 2.Topic 2 Homework 2Topic 2 Homework 2 Answers |