6. Internet - Looking forward

> "Free expression is the base of human rights, the root of human nature and the mother of truth. To kill free speech is to insult human rights, to stifle human nature and to suppress truth"
>
> *Liu Xiaobo, Nobel Peace Prize laureate of 2010 and human rights activist*

CHECKLIST FACT SHEET 23 – INTERNET OF THINGS

In the same manner that you already protect your computer and other devices from security intrusions, be sure to apply those measures to your "Internet of things" devices.

Be aware that it is difficult to protect every individual device, but that you can protect your network and reduce your areas of vulnerability.

Carefully consider any "Internet of toys" items that you plan on introducing into your home and to your child. Check the security and privacy parameters of the toy and ask yourself: "How necessary is this toy?"

CHECKLIST FACT SHEET 24 – ARTIFICIAL INTELLIGENCE, AUTOMATION AND DISRUPTIVE TECHNOLOGIES

Have you informed yourself about the latest developments in artificial intelligence and automation?

Have you invested in your interpersonal, social and emotional skills?

Have you set up your "smart" devices to ensure appropriate levels of security and user-protection?

CHECKLIST FACT SHEET 25 – VIRTUAL AND AUGMENTED REALITY

Have you talked with your child/student about key topics such as sexism, sexuality, racism, bullying, stereotypes and other forms of discrimination?

Have you made sure that the devices your child/student uses are set up correctly, with high privacy and security protection?

Have you checked that your child/student maintains a healthy life balance when using virtual or augmented technology?

CHECKLIST FACT SHEET 26 – ARE YOU THE PRODUCT? BIG DATA, DATA MINING AND PRIVACY

Have you taken the time to review the way your private data is treated by the online services you use, and to set up adequate privacy settings?

Have you recently reviewed the content you have posted online to make sure that it is still accurate and that you are still willing to share it?

Do you stay informed about the latest developments in "big data" to understand how these changes may affect you and what you can do about it?

Fact sheet 26

Are you the product? Big data, data mining and privacy

Big data[1] is a broad term that refers to data that is so vast that it cannot be analysed or processed by traditional methods (using one computer or a simple application for instance).

Big data finds its roots in the combinations of:

- an ongoing tremendous growth of digital storage capacity;
- an increase in data generated by our societies (increasingly, everything we do leaves a digital trace);
- an interconnected world via the Internet which enables all that data to be connected together; and
- a growing ability to analyse and make sense of all the data generated.

1. https://en.wikipedia.org/wiki/Big_data

Examples of online services using big data include social networks such as Facebook, search engines such as Google or Bing, and online retailers such as Amazon. But big data is much more than an "online" thing; it extends into our daily, offline lives too.

- Supermarkets use store cards to analyse shopping patterns and adjust their inventory in real time or programme a special store event (marketing, sale, etc.).
- Data generated from drivers, sensors from their cars and GPS devices help provide real-time traffic information.
- In hospitals, analysing data from sensors, such as the rate of the heartbeat, in real time can help identify infections or other health problems before any external signs and symptoms can be detected.

Data has also become one of the most popular online currencies. Instead of paying with hard money for the online services you use, such as social networks or search engines, you "pay" with the data you feed into these services. This data allows services to customise advertising and marketing to your preferences, making them more effective. However, "paying" with data is a poor comparison. As opposed to money, data is much more sensitive. It can be reused multiple times and be resold. A fairer comparison would be to give the key to your house in exchange for accessing a service!

We are only at the very beginning of this revolution as data becomes even more extensive via, for instance, the Internet of things (see Fact sheet 23 on the Internet of things), and as data analysis becomes more efficient via an increase in computing power and advances in data analysis techniques (artificial intelligence, etc.).

EDUCATIONAL BENEFITS

- Big data carries plenty of potential to optimise and facilitate many parts of your life: making sure that your search queries are more accurate, that your commuting to/from work or school is as time efficient as possible, that you always find the groceries you want in your local store, and so forth.
- Learning about big data and how it works is essential to harness its power and make sure that it works for, and not against, you. This implies choosing carefully which kind of data you are willing to share and selecting services and products based on their use of data.
- Big data can also serve the purpose of helping to understand our societies, making it possible, for the first time in human history, to analyse and make sense of large masses of data generated by people. For social sciences, psychology, behavioural sciences, health care, marketing and many more areas of research, big data is a real breakthrough. The findings in these fields can be harnessed by teachers to illustrate certain sociological concepts with real-life examples and figures.
- The prevalence of online business models relying on data rather than hard currency as their main source of revenue also creates the need for new skills such as personal data management and privacy protection skills. So, similarly to managing your personal budget and finances responsibly and not overspending, you will also have to learn to manage your personal data responsibly and not overshare.

ETHICAL CONSIDERATIONS AND RISKS

Privacy and data protection

While many laws protect individuals' data and privacy, in reality they are difficult to implement. The General Data Protection Regulation (GDPR) requires services to ask for user's explicit consent, but this will most likely only extend the "tick box" exercise, similar to agreeing to "terms of service": either take it or leave it. Users often do not have granular and detailed control over their data and are faced with choices of either sharing everything or nothing. Even if the GDPR tries to address the issue of consumer consent by introducing the principle of proportionality (that is, if the service asking for access to a consumers' data really requires such data to provide the service), the interpretation and enforcement in practice may not be sufficient to protect users. For instance, do social networks require the use of your data for sorting your newsfeed?

The very concepts of privacy and data protection will need to be further developed in the years to come. What does privacy mean? Can your data be exploited as long as it cannot be traced back to you? How can you control the extent to which your data is shared and used in more detail, given the sheer amount of data generated by users on a daily basis?

Standardisation, conformism and stagnation

Big data is a blessing for optimisation. Public transportation, health care and hospitals, urban planning, all of these sectors can benefit from analysing data generated by users, patients and citizens in order to be more efficient. But what if you are different? What if you go to work at unusual hours, what if you have a unique disease, what if you do not want to conform to the "mainstream" way of life? If all the services around you are designed more efficiently on the basis of big data, you as an individual, along with your unique aspirations and needs, may be left out.

But big data can also be used to tailor a service to your needs: search engines, for instance, customise search results based on prior searches and any other data about you; social networks show you posts that you might like. However, showing you only what you want to see, or what you enjoy seeing may have the adverse effect of personal stagnation. For instance, should your political preferences and convictions be more right wing or more left wing, being fed only information and content that supports your views may be flattering to your ego, but might be terrible for fostering core values such as democracy, debate and personal growth – instead it will "lock you in".

Discrimination

Whenever you subscribe to a life insurance, apply for a job, ask for a loan or get car insurance, your competences or the risk you present are being assessed. This can be via a health questionnaire asking if you smoke or do sports, a job interview to test your skills or a check on how you have recently managed your budget and whether you have repaid any loan you have taken out. But where is the line between "fair" assessment and downright violation of your privacy? Many employers already use online information about job candidates to make hiring decisions and there are many hints of insurance companies and banks moving towards analysis of online data to assess the probability of your defaulting on a loan or having a serious health issue. While big data can save lives through its predictive powers, it can also prevent some people from having access to basic financial services or health care.

Selling anti-discrimination

Online reputation-management companies have started to emerge on the Internet. Businesses and individuals can pay these companies to manage their reputation and ensure that their data does not exclude them from access to certain services, such as credit/investment, insurance or employment. This is an example of a commercial exploitation of an externalities cycle akin to polluting a river, selling medicines to poisoned citizens and paying a business to clean the river.

Manipulation and consumerism

Given that the most popular business model for apps and online services alike is the "free" advertising, often based on the exploitation of user data, there is a risk that consumers will be exposed to more and more messages encouraging them to consume. Online advertising is growing each year and new techniques that force consumers to look at or click on advertising are evolving fast. For instance, pre-screening videos appeared only a few years ago. Big data fuels the growth in advertising by making it more efficient and customising it to individuals' habits and interests while learning from mass data the most effective design, place and method for an ad to be seen and interacted with.

Political persecution

While some governments respect privacy and do not spy on their citizens, many do not. The revelations from Edward Snowden showed that governments from all over the world spy on Internet users. In some cases, this is justified for security reasons, such as fighting terrorism and preventing a terrorist attack, but the proportionality of such actions always needs to be questioned. For instance, the police may investigate social network profiles to identify citizens present in a protest march.

Consumer rights

Big data is the new online currency, but what do users get in exchange? The right to use an online service rigged with harassing and pestering advertising? When users pay a monthly fee for using a service, they are protected under consumer rights laws and are entitled to compensation if the service or content does not meet their expectations or presents serious flaws. A user could get a refund from an online video platform if he/she is unable to watch a movie, but what if your favourite social network has bugs or is unusable? What compensation are you entitled to? After all, the social network has used your data to make you look at advertisements and made money from it. The new business model relying on data as a currency poses many problems to consumer rights; as it is supposedly "free", users are often entitled to no compensation and their rights are very restricted.

The end of anonymity

While pseudonyms and nicknames have not yet disappeared, anonymity is under serious threat in the wake of big data. By making links between several pieces of anonymised data, it is possible to identify a person by name online. Even by being very cautious about the information we post, it will be hard for anyone to remain anonymous online in the near future, for better or for worse.

The Internet never forgets

The "right to be forgotten" has gained traction since the European Union took legal steps to make it happen. In practice, however, this is still difficult. Digital content can be easily reposted, modified slightly to be unrecognisable by automated Internet bots or moderators, or hosted on online servers or services that are outside the reach of EU law. Everyone can now easily take pictures or videos with their smartphones at any time, meaning that you can no longer make a fool of yourself and act irresponsibly when you are at a festival without the risk of seeing it uploaded online and have the whole world making fun of you. A fine balance still needs to be struck between the right to accountability and the right to be forgotten.

Bad quality content and services

As online services and content creators rely more and more on advertising for revenue, they will seek to optimise the attractiveness of their service or content. Big data helps in identifying what makes an article, a photo or a video attractive, but will that work for or against quality content or services? More and more articles online rely on "click baiting" to attract users to click

on the link or post and be drawn to their advertisement-filled page. Titles such as "the top three secrets to lose weight", "you won't believe what this girl does in front of her camera" or "the top 10 cutest cats on the Internet" are found more and more frequently online. While there is nothing wrong with entertainment and anecdotal content, the business model relying on advertising is creating a strong incentive to create only that type of content to the detriment of factually accurate content or educational content.

IDEAS FOR CLASSROOM WORK

For young people 14 years old and above: invite the young people to make a search for their name and/or look through the data already available about them online, then to analyse it from the perspective of an employer, an insurer and a government law enforcement authority. Get them to discuss how they would be seen by these organisations were they to analyse the data available about them. For instance, posts sharing articles about the benefits of procrastination or status updates that contain many spelling mistakes may look very bad from the perspective of an employer. Pictures where you are shown smoking and drinking or doing dangerous activities will look bad to an insurer. And finally, posts criticising your government and calling for radical change may look suspicious to law enforcement agencies.

GOOD PRACTICE

- The Internet and big data, in the end, are just further steps in the technical revolution. Whether the end results are good or bad for humanity and society depends on the uses we make of them. As a citizen and as an Internet user, you can shape the way big data will be used, encourage initiatives that work for the benefit of society and suppress those that go against the public interest. For instance, as a citizen, you can vote for policy makers who promote strong ethical standards regarding the use of data; as an Internet user, you can support services and companies that handle your data ethically and responsibly.
- Stay informed about the latest developments in big data, as these will have deep repercussions on your daily life. Not only will this help you decide upon the data you wish and choose to share, it will also help you identify and support policy makers and companies that are in line with your ethical standards on how your private data should be treated.
- Keep track of all the services that you have used and all the content that you have posted online from the very start of your online presence, especially if you have started young! The comments or posts that you have posted as a child or teenager may be easily dug up to haunt you in your adult life. Take some time to review what you have posted, and archive or delete content that no longer represents who you are today.
- Take the time to review the way online services use your private data and choose them accordingly. Always check all the privacy settings available to set the right protection for your data.

FURTHER INFORMATION

- Examples of big data being used for the benefit of society can be found on the EU Commission website: <*https://ec.europa.eu/digital-agenda/en/what-big-data-can-do-you*>.
- Information is also available about the EU regulation on the right to be forgotten: <*http://ec.europa.eu/justice/data-protection/files/factsheets/factsheet_data_protection_en.pdf*>.
- Data & Society is an American think tank focusing on social, ethical and cultural issues arising from data-centric technological development: <*http://www.datasociety.net/*>.
- A report is available on "Civil rights, big data and our algorithmic future": <*https://bigdata.fairness.io/*>.
- The Electronic Frontier Foundation offers information on protecting your rights in the digital world: <*http://www.eff.org*>.
- The European Digital Rights also offers information on defending rights and freedoms in the digital environment: <*http://www.edri.org*>.