

7 Good hygiene in the future

This book started looking into the history of disease and the role hygiene had in driving progress.

IF the assumption “the digital hygiene as practiced today is poor” is valid

THEN the opportunities for reducing the impact of some of the undesirable, antisocial and/or criminal activities are many.

Several things had to happen in the past before diseases and plagues could be managed:

- People had to discard the idea that personal hygiene was not an issue (“a millimetre of dirt is warmer than a centimetre of wood”)
- Health practitioners had to learn more about how diseases propagate and identify environments propitious to bacteria, viruses and their carriers
- The owners of those environments had to take measures to make them safer for human use (e.g. water supplies)
- Researchers and manufacturers had to find substances that could target specific diseases, manufacture them and make them available to the public



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All the above steps continue to be required. If you want to keep your teeth, you better brush them regularly and properly and see your dentist frequently enough.

In terms of cybersecurity, these steps can be reworded as follows:

- People have to accept that digital hygiene is important and, really, not an option.
- Academia and practitioners will continue to learn about developments in malware and transmission vectors
- Product designers will focus on Security By Design
- Researchers and vendors will develop and provide features (hardware and software) that improve security

If you want to keep control of your data, your privacy – I hope this book will point you in the right direction as everything continues to evolve.

Today there is a big difference between the medical environment and that of cyberspace:

Medication is tested extensively before being used and every package includes a leaflet describing contraindications and side effects. The profession is regulated and drugs must get formal approval.

In Cyberspace it is more like the Wild West of the 1800s – largely unregulated, anybody can design and sell a product (or give it away free) and a typical End User License Agreement (almost certainly written by lawyers that you must accept to install and use the product usually states that the vendor/designer has no liability for anything that may happen to your device and/or your data.

7.1 Coming your way: the Internet Of Things

What is this?

Essentially, an environment in which:

- Physical objects are integrated into an information network
- Objects have an Active Digital Identity and can exchange data
- They can be controlled by accessing them through Apps
- Objects can connect to Social Networks and vice versa

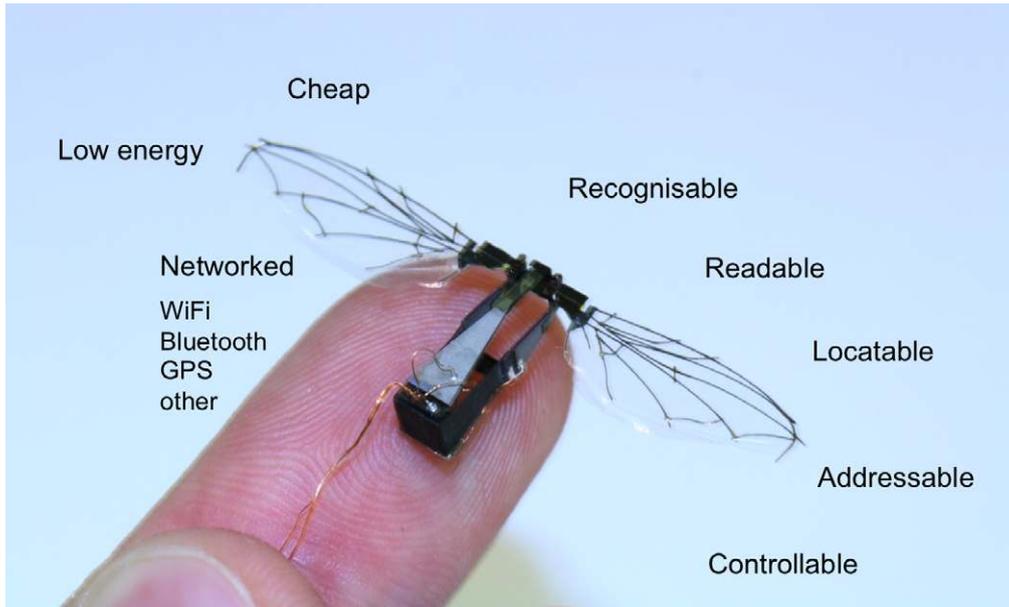


Figure 17: Robotic bee, Harvard University, 2011
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Most of the elements required to meet these two conditions are already available and in use. Many have proven popular, have been the subject of articles in magazines and newspapers and seem to appeal to the owners of smartphones and tablets.

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What if you could build your future and create the future?

One generation's transformation is the next's status quo. In the near future, people may soon think it's strange that devices ever had to be "plugged in." To obtain that status, there needs to be "The Shift".



Some of their uses are “fun” and expressions of human creativity and show how the boundaries of the possible get expanded – for example, a pair of shoes that contain an accelerometer, a gyroscope and a pressure sensor. These link with Bluetooth to a smartphone app. The latter processes the data collected and translates it into motivating comments to the wearer.

The serious includes implantable medical devices such as insulin pumps and heart pacemakers, robots that perform surgery. Medical electronics is seen as an area of great potential. The serious is likely to change the way we live and coexist with technology, being permanently connected gradually building a symbiotic relationship.

The Internet Of Things (IOT) will take this much further by giving objects an identity that can be accessed and verified electronically. The figure below gives a summary of the current status of the IOT and how it may develop.

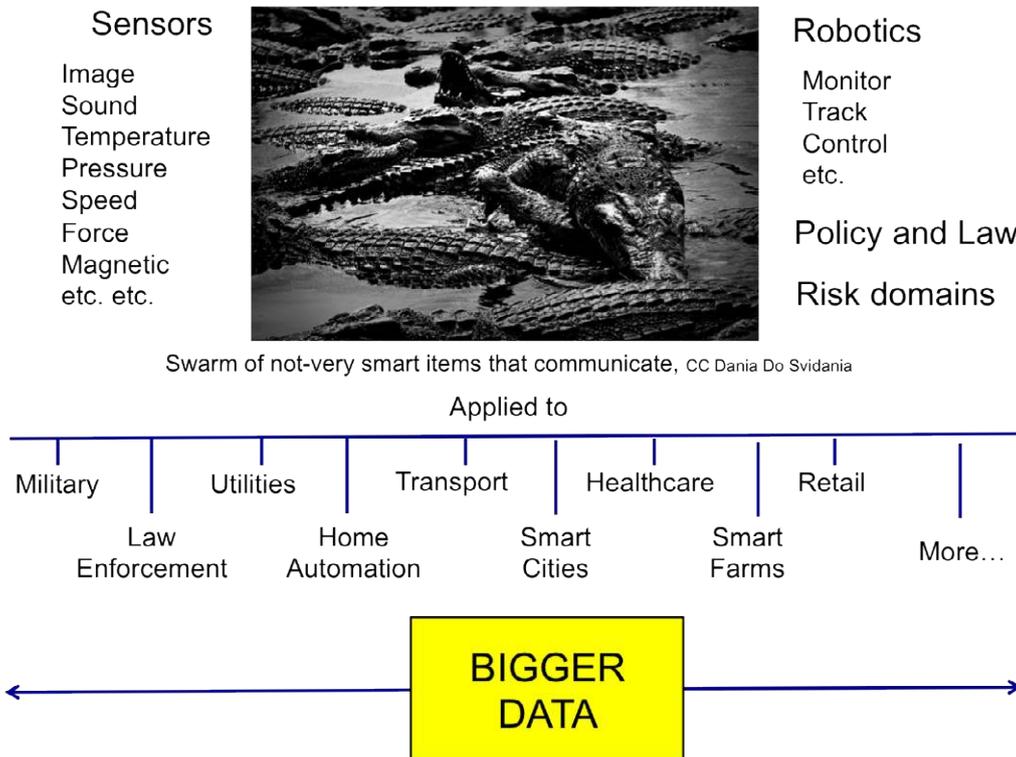


Figure 18: Summary of how an Internet Of Things might develop.
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There is much optimism about the many benefits that an IOT will bring and enthusiasts talk of up to 50 billion devices being connected to it. Driven by Venture capital, commercially motivated vendors, designed by geeks and rushed to the market, we can expect many unintended consequences.

One of them is a change in behaviour – a single device as the robotic bee above is reasonable predictable and controllable. This is not the case when such devices use their connectivity to become a swarm (wasps, locusts, blackbirds, crocodiles, schools of fish and others exhibit such behaviour), something scientists admit they don't fully understand.

We should also know from history that such innovations can be used for good as well as for evil and that for as long as legislation is well behind technology as is always the case, the evil applications will be creative, smart and successful.

Why is this an issue?

Devices exchanging data with each other are definitely progress and should be welcomed. We know that the mobile devices with which they will interact are not necessarily secure – someone else may be able to access, remove or modify the data either on the device or hijack it and use it to control another device such as heart pacemaker: in such a situation a smartphone becomes a deadly weapon that does not need licensing or regulation.

Privacy, Security, Transparency, Cross-border data flows, liabilities and, finally Standards will have to be good enough for the IOT to fulfil its promise.

The risk domains of unintended consequences and malicious use, autonomous swarm behaviour, irreversible dependency and how these will impact the future of work and our relationship with technology are all fascinating topics for research. As it happens, Alvin Toffler defined "Future Shock" as the situation when the future arrives before you are ready for it.

What you should do about it

Becoming an informed observer may be a good idea. Follow the media and discover for yourself whether your character makes you:

- An Early Adopter: those who must have the new "item" as soon as possible. There are many pictures of hundreds of people queuing overnight outside a major brand shop to achieve this.
- A Watcher: those who wait until the "item" has been used for a while, how successfully or otherwise, what issues emerged, what alternatives may be available, etc., before deciding.
- A Laggard: those who are not inclined to adopt new things. They can however become addicts if they receive such an item as a birthday gift but have no concept of cyberspace and are therefore at risk.

Whatever you decide is right for you, please remember you are doing it at your own risk.

7.2 Digital hygiene in 2003

What is this?

The 2003 World Summit on the Information Society took place in 2003. The Diplo Foundation (www.diplomacy.edu) produced and published a series of booklets under the umbrella title of “Information Society Library” – several of these booklets focused on information security and one of them addressed Good Hygiene. The mindmap below summarises the topics covered.

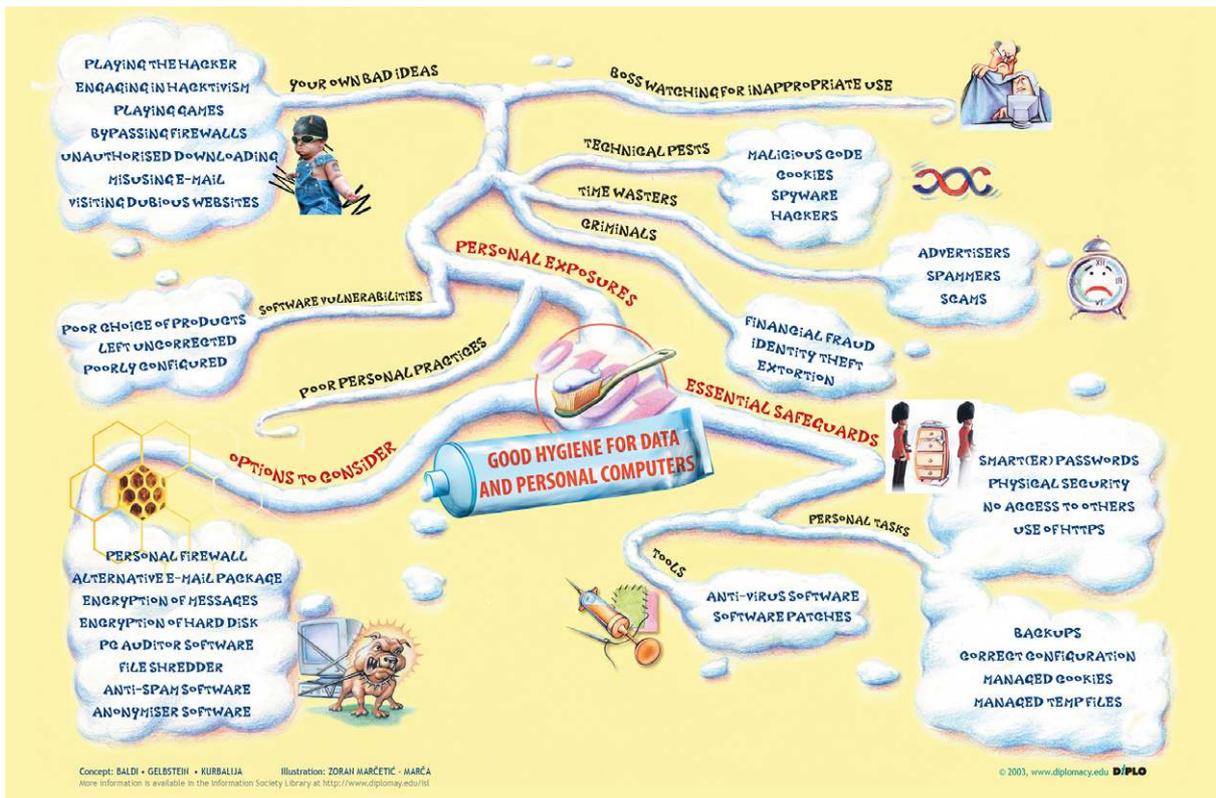


Figure 19: Mindmap from the 2003 Good Hygiene booklet, © Diplo Foundation, All Rights Reserved

Looking back ten years is instructive as it highlights the explosive rate of growth of the interactive electronic world and how much the need for good hygiene has changed.

The term “Web 2.0” was first used in 1999 and marked a departure from the static catalog style of web pages and the emergence of “anyone can be a content creator” that characterizes the web in 2013.

The “smartphone” – a device that combines telephony with computing capabilities was first commercialised in the mid 1990s and these found a measure of adoption in the corporate world. The introduction of the iPhone in 2007 created a popular market for these devices and its thousands of applications (apps). The emergence of tablets and other models of smartphones just increased the need for end users to protect themselves from the dark forces that inhabit cyberspace and the need to practice good hygiene will grow and continue to evolve.