Chapter 1
The Promise and Perils of Wearable Technologies

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ABSTRACT

Wearable technology collectively describes some of the most exciting emerging technologies, encompassing smart gadgets, garments, jewelry, and other devices worn on the user's body. In recent years, high profile wearable devices such as the Google Glass, Apple Watch, and FitBit have captured both the public imagination and headlines. Wearable technology has the potential to change the world even more profoundly than other mobile technologies. The appearance of such high profile wearable devices in the end-consumer market has also lead to serious consideration of the implications of such technologies, previously limited to the pages of science fiction. The implications for security and privacy of individuals and organizations, and the potential dangers to both society and the economy, must be considered and addressed in order for wearable technology to successfully deliver upon its many promises. Through addressing such concerns, the pathway to a "wearable future" can be unlocked, and users can adopt wearable technology with confidence.

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INTRODUCTION

The purpose of this chapter is to introduce the field of wearable technology, and to provide a general background for the later chapters in this book. Often referred to simply as wearables, wearable technology, by definition, means a smart gadget or garment worn on an individual's body. This term includes smart watches, smart eyewear, smart jewelry, and wristbands for fitness tracking, as well as clothing or accessories enhanced to sense, record and transmit personal information. The field of wearables is one of the most exciting technologies to emerge in recent times, and is forecasted to continue to grow well into the future, with increased adoption and the continuing innovation of new devices and applications.

Wearable technology also includes *implantables*: devices that are surgically placed within the body, perhaps for medical monitoring but with the potential for identification, tracking and alerting applications. Other arguably wearable technology includes smartphones, from which many of today's users are effectively inseparable, and which are frequently the communication link between a wearable gadget and the wider Internet. Just as smartphones have become ubiquitous and have engendered a reconfiguration of organizational and societal practice, the advent of wearables promises to evolve this trend towards a new normality.

Whilst the growth of wearables continues as their positive benefits become realized, their "hidden dangers" are less often considered. The developers and adopters of wearable technologies will have more success and satisfaction if implicit issues of privacy, security, and safety are known, addressed and managed. Many of these overlap with social and technical issues related to individual smartphone use, including user identity, tracking or stalking, but also bring new problems in an enterprise context, where corporate data and other information can become vulnerable to underhanded or insecure leakage. There are many implications of smart wearables, which will require policy and legislative revisions.

In this chapter we overview the emerging space of wearables and raise some of the general concerns raised by their potential widespread adoption, for individuals, for organizations and for society. The subsequent chapters expand on several of these issues, both conceptually and empirically, suggesting not only practical recommendations but also emerging issues for research or debate as our understanding develops.

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