1 Introduction

What this chapter will cover:

- Early methods of wayfinding.
- Early evidence of mobility and tourism.
- Early evidence recording tourists' movement.
- The genesis of modern travel and technology.
- Recent technological innovations and big data.
- The mobility paradigm and new mobility paradigm.

Introduction

In the past twenty years we have seen changes in technology that have reconfigured the way in which tourists plan, travel, reflect and share experiences. These changes have caused us to reconsider how tourists travel and how they make decisions, as well as how destinations market themselves. The now ubiquitous use of mobile phones has been documented as being a major influence (Wang, Park and Fesenmaier, 2012). Yet, while large swathes of research have focused on the use of technology and the impact that technology has had upon tourists' decision making, there is comparatively far less research that concentrates on using technology to understand where tourists travel to, and how they move between destinations and attractions. The tourism industry has been documented as lagging far further behind than other industries in its use of technology, particularly that which delivers research insights

(Eccleston, Hardy and Hyslop, 2020). The reasons for this have not yet been explored in great detail, but they are quite possibly due to the fact that the tourism industry is dominated by small to medium sized businesses whose capacity for expenditure on the use of technology and research is limited, relative to other industry sectors such as mining and forestry. A second reason is that tourism is reliant on an element that is often far harder to control – people. Unlike sectors that use biological elements as their key resources, and can place sensors where needed without requiring consent, tourism's reliance on humans and their interaction with technology makes tracking far more complex. A third reason is that tourism arguably lags behind other sectors because the methods available to the industry to track and understand mobility involve complex technology, and different methods require specialist analytical skills. The Director General of the World Health Organisation, Tedros Adhanom Ghebreyesus, argued that decision makers are facing an 'infodemic' as a result of large swathes of data being made available in order to assist understanding the impacts of the COVID-19 pandemic (Zarocostas, 2020). The plethora of options facing the industry in regards to which technology to use and how, is undoubtedly adding to this lag.

This book seeks to assist the tourism research community by providing a review of the range of tracking methods available to researchers. Currently the broader body of work remains disparate; journal articles tend to focus on one method at a time and are published in their different disciplines. Consequently, the relative opportunities and challenges of each method have rarely been discussed side by side. In order to address this dearth, this book will devote an entire chapter to a different type of method and reviews its functions, the conceptual and methodological advances that have emerged from the application of the technique, the ethical implications of applying the technique, and its pros and cons. The book does not explain the precise methods required to analyse data using each of these methods, as an entire book could be dedicated to each chapter if this approach were to be taken. Rather, it is designed to assist researchers to choose which tracking method is most suited to their specific research needs and understand what type of technical expertise is required. The founding principle that underpins this book is that ethical research practices must occur

at all times, hence the inclusion of a separate chapter that refers to this requirement and sections in each chapter that refer the ethical implications of each tracking technique.

A short history of understanding mobility and tourism

Tracking mobility is not a new phenomenon, nor one that has emerged since the advent of digital technology. There is evidence as far back as 3500 BCE that seafarers were exploring the world and tracking their location (Denny, 2012). In those times, sounding poles or lead lines were used to indicate the depth of the waters, and knowledge of winds and tides, plus the temperature and colour of water currents, was used to navigate. Celestial navigation was also used; there is evidence of Bronze Age people, the Minoans of Crete (2700 BCE to 1450 BCE), traveling from Crete to Egypt using the stars, particularly the Pole Star (Draco) to guide them. Pytheas, a Greek explorer, is also known to have used the Pole Star and possibly also a gnomon (a sundial that casts a shadow), to navigate himself in the fourth century BCE. There is also evidence of celestial navigation occurring around 3000 BCE by Taiwanese people who travelled through the islands of Southeast Asia. Polynesians, Micronesians and Melanesians were also highly skilled navigators who moved between the islands of the Pacific, using a combination of the horizon, stars and points on the horizon (Denny, 2012); a practice that still continues today.

The development of the compass had a profound impact on tracking and mobility. Its use was first recorded in China during the Qin dynasty (221–206 BCE) when the magnetic south-pointing needle was used on chariots to assist ambassadors in finding their way home. It consisted of a square slab that had markings on it for the constellations and north, south, east and west. The pointing needle was spoon-shaped and made of lodestone and would always point south (Lane, 1963; Hirth, 1906). While its existence was noted around 220 BCE, there is a dearth in the recording of this technique for several centuries after this, until 139 CE when the Chinese astronomer Chang Höng was recorded