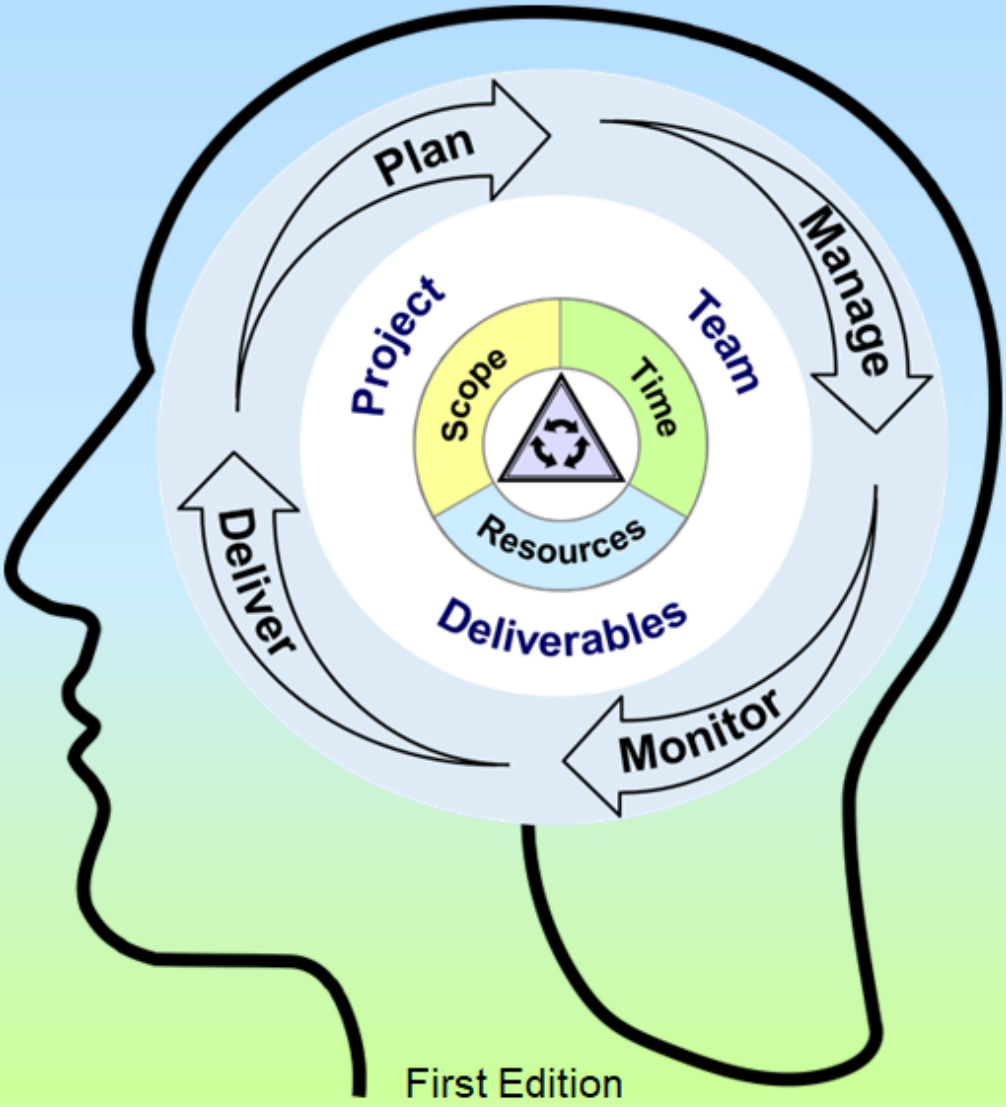
COMPASS GUIDE for

Research Project Management



First Edition

Dr Sandra Mandic, PhD, PMP

AGILE Research Ltd.

Compass Guide Research Training

By AGILE Research Ltd.

Sandra Mandic. (2023) Compass Guide for Research Project Management. (First Edition) AGILE Research Ltd., Wellington.
ISBN: 978-0-473-67924-8 (PDF); 978-0-473-69523-1 (paperback).

AGILE Research Ltd., 3/43 Cooper Street, Karori, Wellington, 6012, New Zealand

Title: Compass Guide for Research Project Management
Author: Sandra Mandic
Publisher: AGILE Research Ltd., Wellington, New Zealand
Publication date: September 2023

Citation: Sandra Mandic. (2023) Compass Guide for Research Project Management. (First Edition) AGILE Research Ltd., Wellington
ISBN: 978-0-473-67924-8 (PDF)
ISBN: 978-0-473-69523-1 (paperback)

This book is available for purchase from the AGILE Research Ltd. website: https://agileresearch.nz/

No artificial intelligence (AI) tools were used in creation of the content of this publication.

Introduction to the Compass Guide for Research Project Management

Put yourself in the shoes of a person who is faced with the task of putting together a project team and planning and running a research project for the first time – either as part of your work or studies. You are responsible for designing the project, completing the project according to your plan, managing the project team, and delivering promised research outputs – within the allocated time and with the allocated resources. What do you need to know to pull this off successfully?

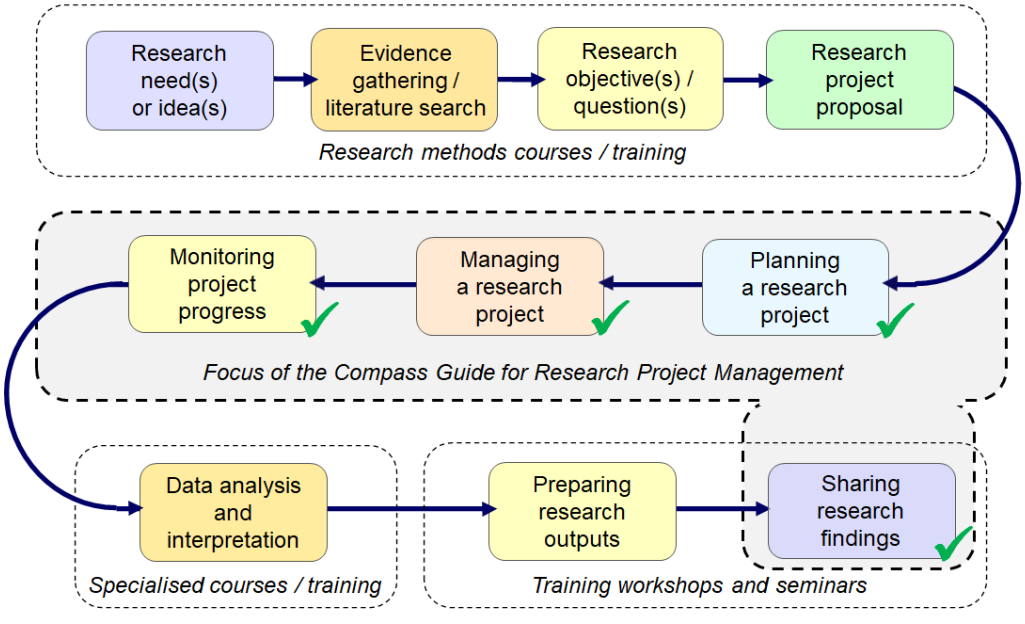
Research Training Content Commonly Covered in University Programmes

Most university programmes teach the fundamentals of research through **research methods courses**. Such courses introduce students to the research process, teach them how to search literature and write a literature review and help them shape their research question(s). Such courses also teach students about research methods in their chosen discipline, assist them with selecting appropriate research methods to answer their research question(s) and may teach them how to write a research proposal.

University programmes also offer **specialised data analysis courses**. Students are encouraged to take such courses to learn how to conduct data analyses for their own research projects.

Many universities also offer customised **student learning workshops and seminars** – often aimed at doctoral students – to teach students about writing different components of their thesis and putting their thesis together. Such programmes may also introduce students to discipline-specific standards for sharing academic research through research presentations, conference abstracts and scientific journal articles.

What is often missing in university research training is how to plan, manage and monitor research projects to ensure successful project completion and delivery of planned research outputs. Learning through trial and error is one option – but it may not be the most efficient one.



Sandra Mandic. (2023) Compass Guide for Research Project Management. (First Edition) AGILE Research Ltd., Wellington.
ISBN: 978-0-473-67924-8 (PDF); 978-0-473-69523-1 (paperback).

Why This Compass Guide Book?

You may wonder what value *the Compass Guide for Research Project Management* adds to the content commonly covered as part of university-based research training.

Why?

This Guide covers an important but often **not** taught component of the research process: how to plan, manage and monitor research projects – and deliver planned research outputs on time and with the available resources.

What?

The Guide covers fundamentals of research project management. It offers guidance and ideas for planning and managing research projects, monitoring progress and delivering research outputs.

Who?

This Guide has been designed for researchers, research project managers, current and future research students and their supervisors, research staff and professionals involved in research as part of their work.

How?

The Guide in front of you provides recommendations, tips, research project management tools (such as project planning worksheets), examples, ideas and suggested readings. These materials will equip you better to plan, manage and monitor your research projects, project teams and delivery of research outputs.

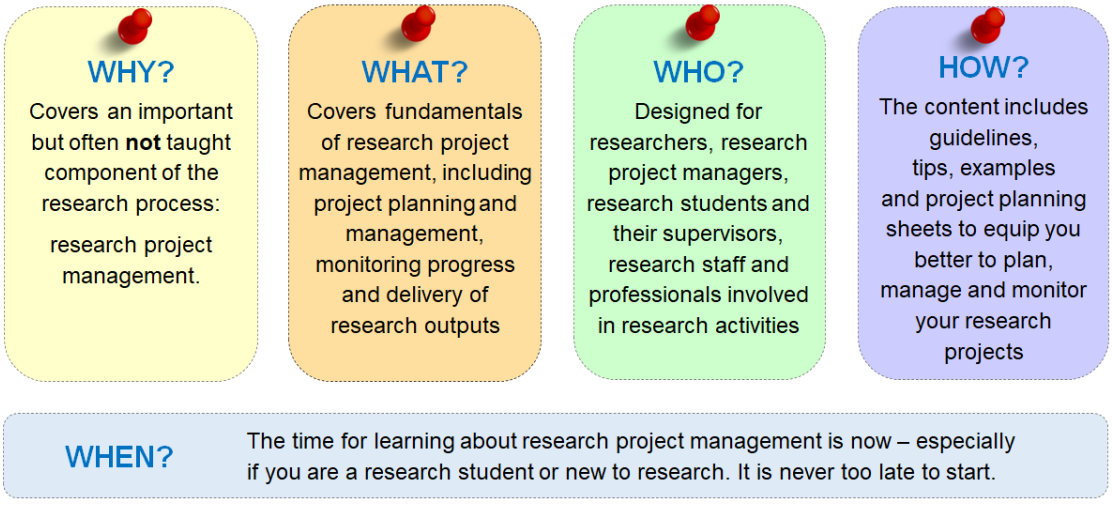
When?

You may wonder when the time is right to learn about research project management. The answer is: “The time is now!” – especially if you are a research student, new to research or responsible for guiding others on their research journey.

What if You Already Have Experience Conducting Research Projects?

Even if you have experience in conducting research projects, you will likely find some gems in this Guide to improve your research project management processes or teach others about research project management.

Book: Compass Guide for Research Project Management



Sandra Mandic. (2023) Compass Guide for Research Project Management. (First Edition) AGILE Research Ltd., Wellington. ISBN: 978-0-473-67924-8 (PDF); 978-0-473-69523-1 (paperback).

Structure of This Compass Guide

Research projects are a specific type of project – often with an unclear scope at the beginning but with specific timelines and frequently with limited (if any) budget. Nevertheless, the fundamentals of project management are as relevant to research projects as they are to other projects.

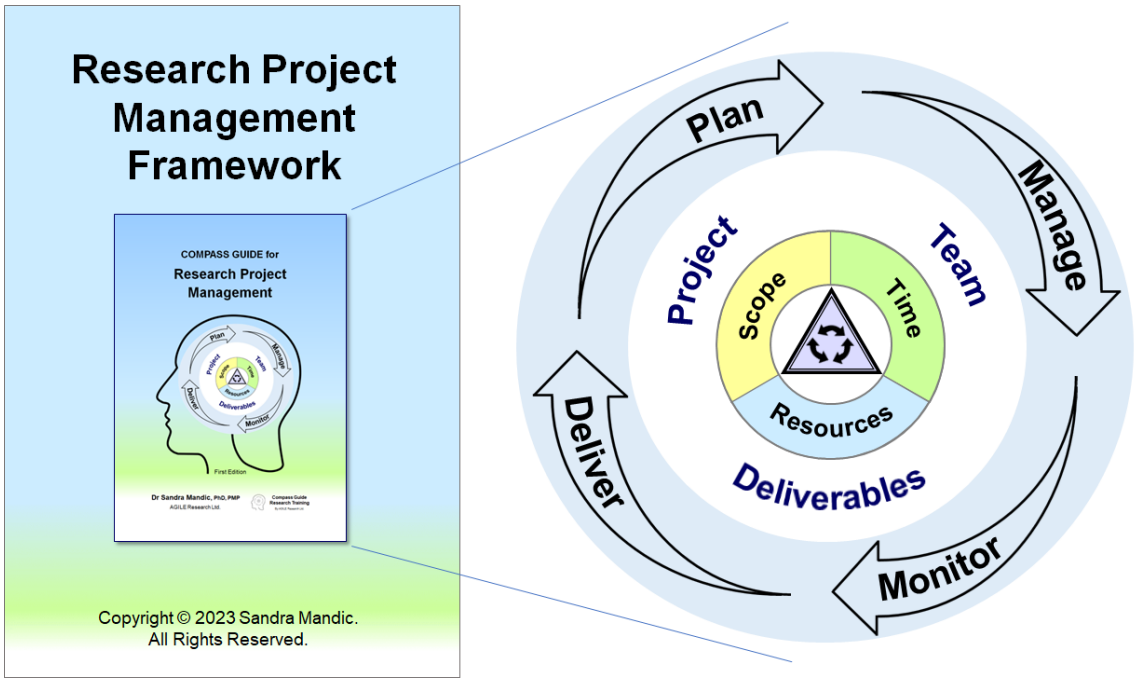
Research projects also have distinct features associated with charting new unexplored territories and uncertainties that are an integral part of such endeavours.

This Compass Guide is structured around the Research Project Management Framework developed by author, Dr Sandra Mandic. The framework differentiates four distinct processes in research project management: project planning, project management, monitoring progress and delivery of research outputs.

The framework also differentiates three components of research projects for project management purposes: project procedures, project team and project deliverables.

Finally, the framework integrates the scope-time-resources triangle of project management as the core principle for research project management.

The Compass Guide for Research Project Management covers each of the four research processes in separate sections. Each of those sections discusses project management aspects relevant to the project procedures, research team and project deliverables with a focus on management of scope, time and resources within each of those components.



Sandra Mandic. (2023) Compass Guide for Research Project Management. (First Edition) AGILE Research Ltd., Wellington. ISBN: 978-0-473-67924-8 (PDF); 978-0-473-69523-1 (paperback).

Content of This Compass Guide

The Compass Guide for Research Project Management is divided into six parts.

The introductory part of the Guide, Part 1: Fundamentals of Research Project Management introduces the scope-time-resources triangle of project management, provides an overview of research project management processes and components, and introduces the Research Project Management Framework.

Part 2: How to Plan Your Research Project covers defining the project scope through shaping research objectives, selecting research methods and planning research procedures. This section also covers assessing research project resources, developing the project timeline, identifying risks and risk management strategies, obtaining necessary approvals and securing research funding. This section also covers putting together a research team and high-level planning of project deliverables.

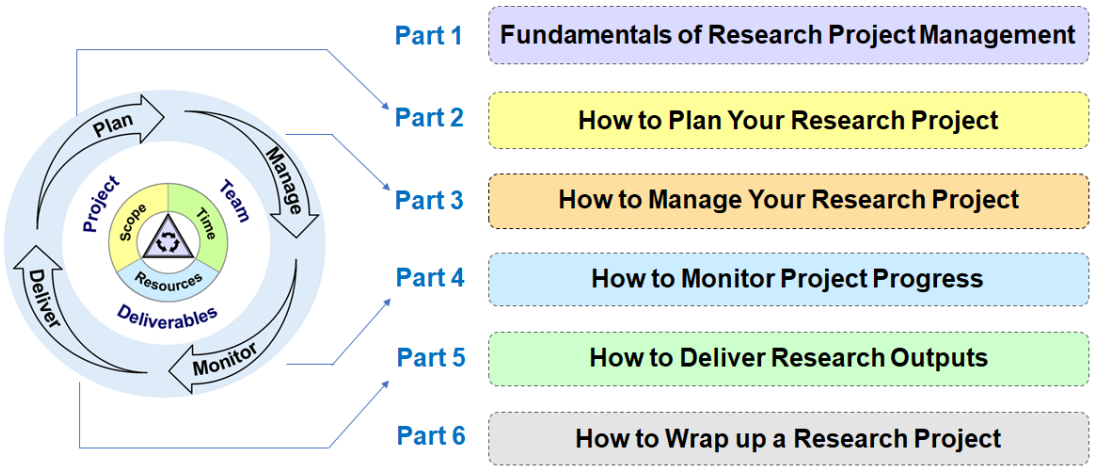
Part 3: How to Manage Your Research Project focuses on the management of the project procedures and project team during the project implementation phase. This section also covers testing research procedures, managing data collection and research data storage, managing the project team (including stakeholders, if applicable) and managing preparation of research outputs.

Part 4: How to Monitor Project Progress focuses on monitoring and controlling project procedures, processes, timeline and budget, functioning of the research team and progress with preparation of planned research outputs.

Part 5: How to Deliver Research Outputs focuses on project deliverables. The full circle of research project management is completed once the planned research outputs are delivered and research findings are shared with the relevant stakeholders. This section covers how to prepare research reports and deliver effective research presentations for communicating findings to stakeholders and professionals outside academia and, when relevant, the general public.

The final part of this Guide, Part 6: How to Wrap up a Research Project discusses the steps involved in closing a research project and the importance and value of reflecting on lessons learned and integrating those insights into one's future work.

Content of the Compass Guide for Research Project Management

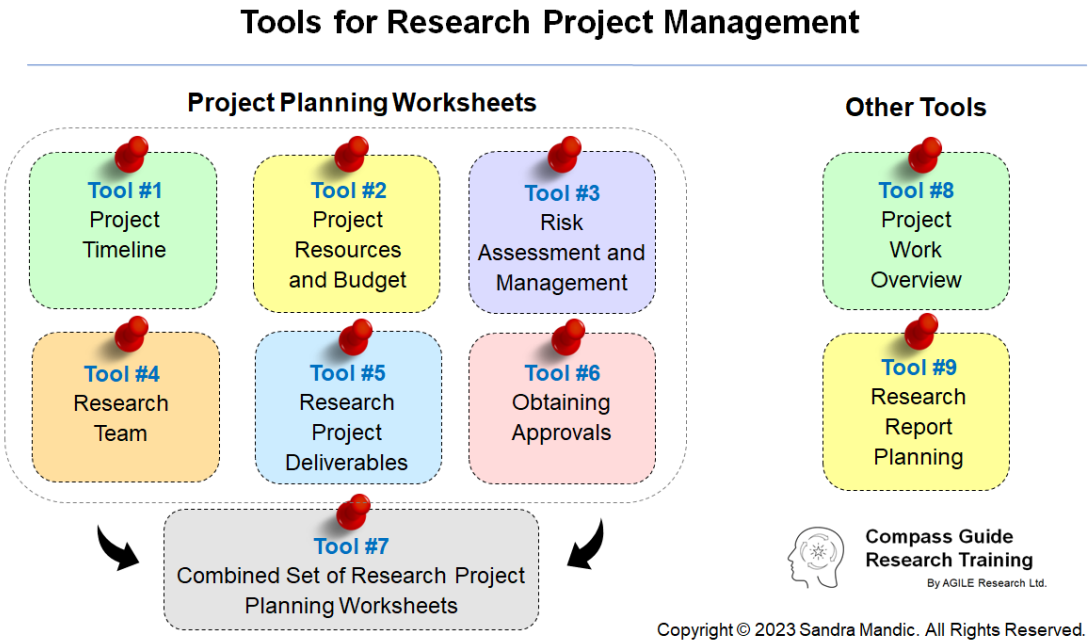


Sandra Mandic. (2023) Compass Guide for Research Project Management. (First Edition) AGILE Research Ltd., Wellington.
ISBN: 978-0-473-67924-8 (PDF); 978-0-473-69523-1 (paperback).

Research Project Management Tools

This Guide includes eight research project management tools developed by the author, Dr Sandra Mandic, and a combined set of planning worksheets that individuals and teams could use for planning their research projects. Readers are encouraged to use these tools when planning their own research projects. In some cases, the presented tools would need to be modified to tailor them to the specific needs of particular research projects.

In addition, the Guide includes numerous examples of research project management tools created by Dr Sandra Mandic for managing research projects and programmes that she led. Those examples provide ideas and encourage readers to think about their own research projects and design fit-for-purpose tools for managing and monitoring their projects. Each research project is unique. As a result, suitable research project management tools will vary greatly across projects.



Research project management tools included in this Compass Guide:

Sandra Mandic. (2023) Compass Guide for Research Project Management. (First Edition) AGILE Research Ltd., Wellington. ISBN: 978-0-473-67924-8 (PDF); 978-0-473-69523-1 (paperback).

Main Source of Examples in This Book: BEATS Research Programme

All examples included in this Guide have been developed by the author, Dr Sandra Mandic. Most examples come from the award-winning, interdisciplinary and cross-sector Built Environment and Active Transport to School (BEATS) Research Programme established, led and managed by Dr Sandra Mandic since 2013 (see details below). Some examples from the BEATS Research Programme or BEATS research data have been modified for inclusion in this book as hypothetical examples.

BEATS Research Programme

The BEATS Research Programme examines individual, social, environmental and policy influences on active transport (walking or cycling) to school in adolescents in the Otago region of New Zealand. This research programme is a partnership between academia, schools, a local city council and the wider community. The programme has been designed and implemented using a community-based participatory approach with the sustained involvement of key stakeholders. The programme twice achieved a 100% school recruitment rate in Dunedin, New Zealand. The BEATS Research Team has had investigators from multiple disciplines and countries, advisory board members from the local community, and many collaborators, research students, research assistants, and volunteers during the 2013-2023 period.

At the time of this publication, the BEATS Research Programme deliverables include 39 published scientific journal articles (published across 17 scientific journals); 168 scientific conference abstracts; 56 technical reports; 36 research presentations for academics and 67 for policy makers, health and transport professionals and schools; 6 national and 2 international symposia organised by the team members; and 54 media reports.

Components of the BEATS Research Programme

This BEATS Research Programme consists of three large research projects conducted during the 2014-2023 period:

- BEATS Study (2014-2017)[1]
- BEATS Rural Study (2018-2019)
- BEATS Natural Experiment (2020-2023)[2]

Each BEATS Research project included comprehensive data collection on 1,000 to 1,800 adolescents in 11 to 12 high schools (depending on the project) using various research methods: an online survey, body measurements, school bag weight measurements, focus groups, mapping of the route to school, and device-measured physical activity. The first project – the BEATS Study – also included surveys, focus groups and device-measured physical activity in parents of adolescents, focus groups with teachers and interviews with school principals.

Study protocols for two of the BEATS research projects have been published in scientific journals as open access articles:

[1] *Sandra Mandic, John Williams, Antoni Moore, Debbie Hopkins, Charlotte Flaherty, Gordon Wilson, Enrique García Bengoechea, John C. Spence. Built Environment and Active Transport to School (BEATS) Study: protocol for a cross-sectional study. BMJ Open. 2016;6:e011196. DOI: https://doi.org/10.1136/bmjopen-2016-011196*

[2] *Sandra Mandic, Debbie Hopkins, Enrique García Bengoechea, Antoni Moore, Susan Sandretto, Kirsten Coppell, Christina Ergler, Michael Keall, Anna Rolleston, Gavin Kidd, Gordon Wilson, John C. Spence. Built Environment Changes and Active Transport to School among Adolescents: BEATS Natural Experiment Study Protocol. BMJ Open. 2020;10:e034899 DOI: https://doi.org/10.1136/bmjopen-2019-034899*

Sandra Mandic. (2023) Compass Guide for Research Project Management. (First Edition) AGILE Research Ltd., Wellington. ISBN: 978-0-473-67924-8 (PDF); 978-0-473-69523-1 (paperback).

Research Project Management Examples from the BEATS Research Programme

The BEATS Research Programme represents an excellent source of research project management examples due to the programme's characteristics:

- The programme began as a pilot project with NZD $5,000 of funding in 2013 and, within seven years, grew into a research programme with NZD $1.5 million in research funding (300 times increase in funding)
- Several large research projects were conducted consecutively, using similar research methodology which was expanded from one project to another, informed by findings and lessons learned from the completed BEATS project(s)
- All projects were conducted by a single research team during the 10-year period which enabled lessons learned to be integrated into subsequent projects
- Each project had an extensive and complex data collection component – and therefore complex project management requirements
- Over the 10-year period, the BEATS Principal Investigator Dr Sandra Mandic created and incorporated many project management tools into each BEATS project and the overall programme
- The data collection for the latest BEATS Research project – BEATS Natural Experiment – was impacted by the COVID-19 pandemic which resulted in a project extension, with no additional budget, and which required project scope adjustments. Data collection was completed successfully 9 months later than originally planned. The process and changes that the team and the project went through are described as a real-world example of risk management for research projects in this Guide.

Project management knowledge, processes and tools have been essential behind-the-scenes features that ensured successful implementation for all three BEATS projects, building and maintaining strong interdisciplinary and cross-sector collaborations over the 10-year period, and a comprehensive dissemination of research findings to the academic community as well as stakeholders, policy makers, relevant professionals and the general public.

BEATS Research Acknowledgements

The BEATS Research Programme is a collaboration between Dunedin Secondary Schools' Partnership, Dunedin City Council, University of Otago and Auckland University of Technology.

The BEATS Study was supported by the Health Research Council of New Zealand Emerging Researcher First Grant (14/565), National Heart Foundation of New Zealand grants (1602 and 1615), Lottery Health Research Grant (Applic 341129), University of Otago Research Grant (UORG 2014), Dunedin City Council and the University of Otago internal grants. The BEATS Rural Study was supported by the University of Otago Research Grant (UORG 2018) and Otago Energy Research Centre Seed Grant. The BEATS Natural Experiment was supported by the Health Research Council of New Zealand Project Grant (19/173). The BEATS Research Team acknowledges the great support of all funders.

Dr Sandra Mandic acknowledges the contribution of all members of the BEATS Research Team (investigators, collaborators, advisory board, research students, research assistants, and volunteers), as well as all participating schools, adolescents, parents, teachers and school principals who contributed to the BEATS Research Programme during the 2013-2023 period.

Buckle up and let's embark on an exciting journey of learning about how to plan and manage (your) research projects...

Sandra Mandic. (2023) Compass Guide for Research Project Management. (First Edition) AGILE Research Ltd., Wellington. ISBN: 978-0-473-67924-8 (PDF); 978-0-473-69523-1 (paperback).