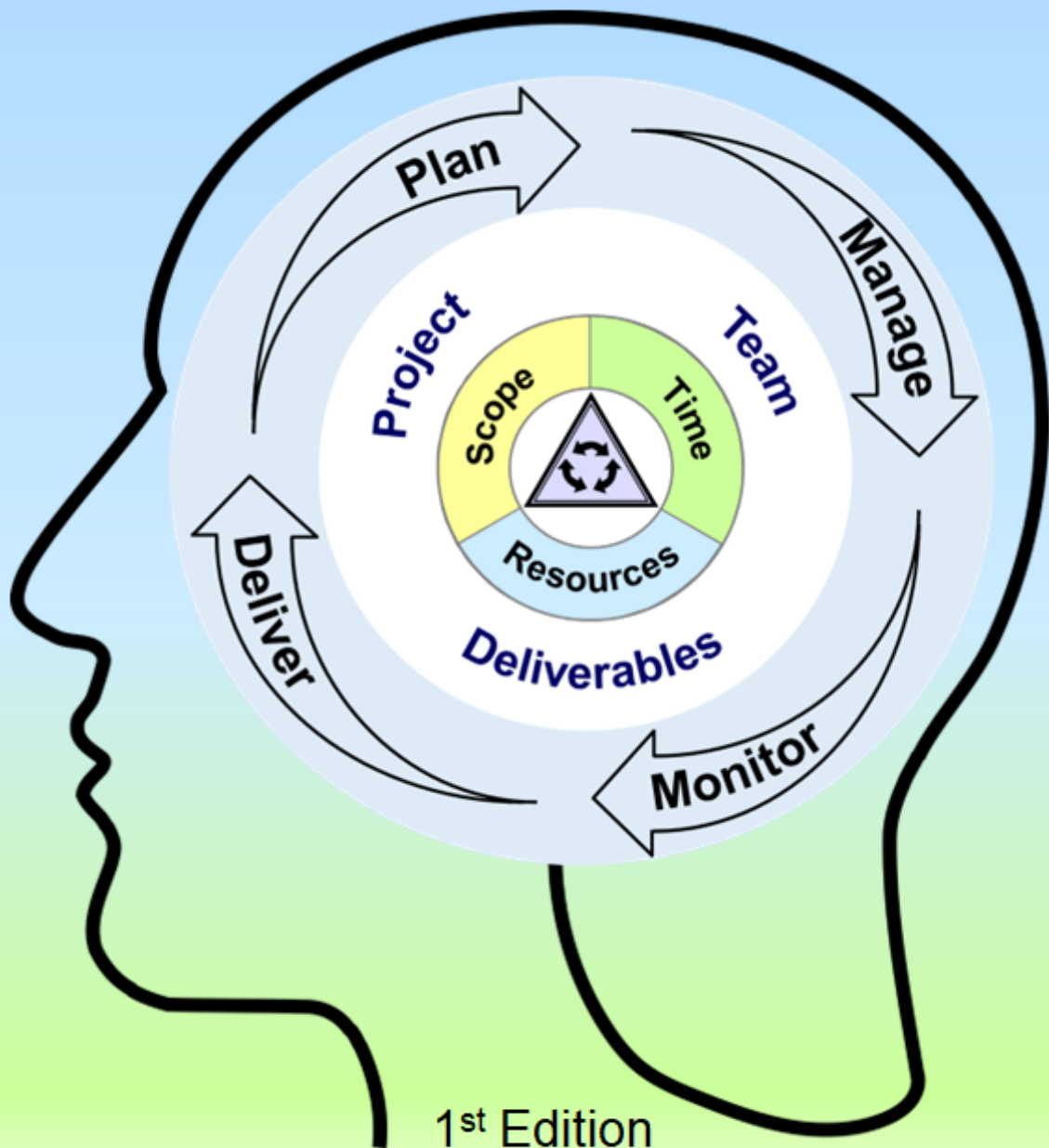


COMPASS GUIDE for Research Project Management



Sandra Mandic, PhD, PMP
AGILE Research Ltd.



**Compass Guide
Research Training**

By AGILE Research Ltd.

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*To my husband, Philip McKague,
for all his love, wisdom, and support,
for many insightful conversations over the years,
and for always being there for me
and encouraging me to keep following my dreams.*

About the Author

Sandra Mandic, PhD, PMP is a researcher with over twenty years of research experience in the health and transport sectors. She also holds a Project Management Professional (PMP)[®] certification from Project Management Institute.

Sandra's personal and professional experience spans nine cities across five countries and three continents - including Europe, Canada, United States and New Zealand. She completed a Bachelor's degree at the University of Novi Sad (former Yugoslavia), Master's of Science and Doctor of Philosophy degrees at the University of Alberta (Canada) and postdoctoral training at Stanford University (United States), and has worked as an academic and a researcher in New Zealand since 2009.

Sandra is passionate about research, innovation, mentoring, project and programme management, and building bridges between people, sectors and cultures. She is the founder and the director of [AGILE Research Ltd.](http://www.agileresearch.nz) (www.agileresearch.nz), a research consultancy which specialises in providing research and evaluation, project management and research training services to government departments, schools, businesses and academic institutions.

As a researcher, Sandra has initiated and managed a wide range of research projects and programmes, including the award-winning and internationally recognised Built Environment and Active Transport to School (BEATS) Research Programme, published over 80 scientific journal articles to date and supervised over 40 research students.

Sandra also has experience of working and applying research and project management skills in the government sector.



Sandra designed the [Compass Guide Research Training Resources](#) for researchers, current and future research students and their supervisors, research project managers and coordinators, and professionals involved in research activities in various sectors. At the time of this publication, the Compass Guide Research Training Resources comprise three Compass Guide books and a series of short research training videos on the [AGILE Research YouTube channel](#) (see next page for more information).

Sandra speaks four languages, is happily married to a Canadian husband and has two Kiwi (New Zealand) children. She loves travelling and learning about different cultures and has many friends and professional connections around the globe.

Compass Guide Research Training Resources



**Compass Guide
Research Training**
By AGILE Research Ltd.

Designed to help individuals and teams navigate the research process and successfully complete their research projects

<u>Compass Guide for Beginners</u>	<u>Compass Guide for Postgraduate Students</u>	<u>Compass Guide for Research Project Management</u>
<p>Book (PDF) (35 pages)</p>	<p>Book (PDF) (153 pages)</p>	<p>Book (PDF) (187 pages)</p>
<p>Designed for undergraduate students and professionals</p>	<p>Designed for Doctoral and Master's students (current and future)</p>	<p>Designed for researchers, research project managers, research students and their supervisors, research staff and professionals involved in research activities</p>
<p>Beginners / novice level</p>	<p>Advanced level</p>	<p>Advanced level</p>
<p>Features: Guidelines · Tips Some examples Links to YouTube videos</p>	<p>Features: Guidelines · Tips · Examples Activities · Feedback templates Ask your supervisor · Readings</p>	<p>Features: Recommendations · Tips Project management tools Examples · Case studies</p>



[YouTube video link](#)

[AGILE Research YouTube Channel](#)

A series of short research training videos based on the content covered in the Compass Guide books.

Compass Guide Research Training Resources are available for purchase on the AGILE Research Ltd. website: www.agileresearch.nz/products

Acknowledgments

This book evolved through 20+ years of research experience, learning, reflections, discussions, mentoring and being mentored, and interactions with a wide range of individuals along my intercontinental and cross-cultural professional and personal journey: my academic mentors and colleagues, research students, numerous research collaborators from different sectors, and many colleagues and friends from around the globe. Thank you to all of you for sharing your knowledge, thoughts, experience, time and culture with me.

A special thank you goes to all members of the Built Environment and Active Transport to School (BEATS) Research Team who joined a part or the entire 10-year BEATS Research journey packed with action and never-ending learning together and from each other. Many insights gained from each of you and from every step of the exciting and immensely rewarding BEATS Research journey have been integrated into this book. Those insights provide real-world examples of research project management tools that have now been shared with the world via this book. A special thank-you also to the BEATS Research Data Guardianship Panel that granted permission for BEATS Research materials to be shared in this book.

A massive thank you goes to eighteen peer reviewers who provided insightful feedback on earlier drafts of this book and offered valuable comments that helped shape this book into its final form. Reviewers from the project management sector include Iain Fraser, Grant Avery, Kosam Nyamdela and Faiz Rasool. Reviewers from academia include Debbie Hopkins, Palma Chillón, Ricardo Brandao de Oliveira, Susana Aznar Laín, Josef Mitáš, Mira Milić, Stevo Popović, Javier Sayayera, Tuija Tammelin, and Uglješa Marjanović. Reviewers from other sectors include Louise Baker, Hafez Alavi, Charlotte Flaherty and Mandana Asadi. Thank you all for your valuable input!

A special thank you also goes to many individuals and organisations who wrote about and advanced the project management knowledge over the years. Many thanks to [Pixabay](#) for images and [Microsoft](#) for icons used in infographics created for this book.

Last but not least, a massive thank you to my Dream Team – my husband Philip McKague and children Adriana and Oliver McKague – for their love, inspiration, positive energy and support over the years and for their incredible patience as I have been taking the time to work on different projects (including this book) that are part of my dreams.

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Introduction to the Compass Guide for Research Project Management

Put yourself in the shoes of a person who is faced with tasks 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 that off successfully?

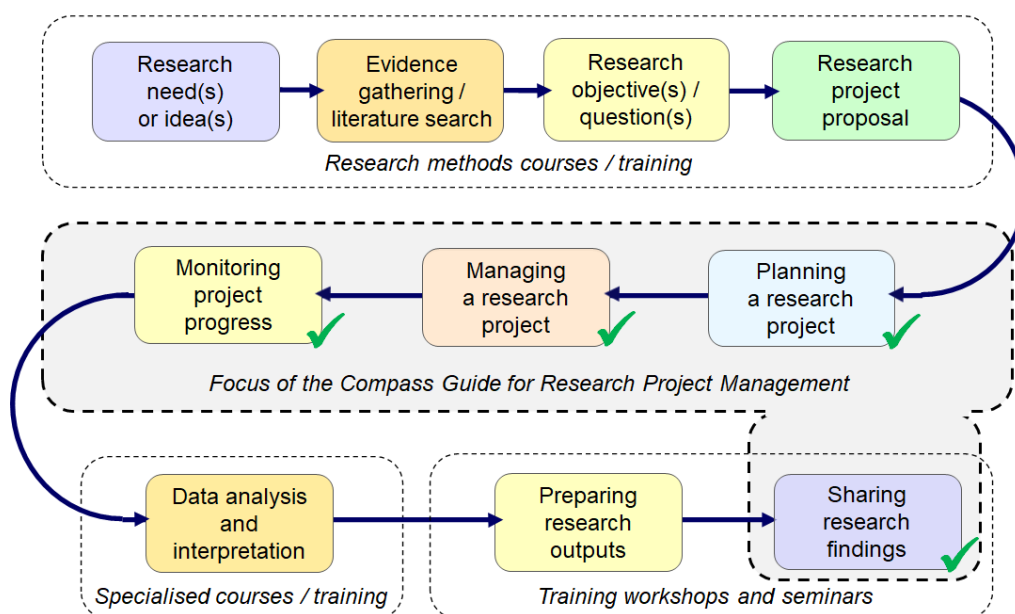
Research Training Content Commonly Covered in University Programmes

Most university programmes teach 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.



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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 right time is to learn about research project management. The answer is: “The time is now!” – especially if you are a research student or 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

WHY?

Covers an important but often **not** taught component of the research process: research project management.

WHAT?

Covers fundamentals of research project management, including project planning and management, monitoring progress and delivery of research outputs

WHO?

Designed for researchers, research project managers, research students and their supervisors, research staff and professionals involved in research activities

HOW?

The content includes guidelines, tips, examples and project planning sheets to equip you better to plan, manage and monitor your research projects

WHEN?

The time for learning about research project management is now – especially if you are a research student or new to research. It is never too late to start.

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Structure of This Compass Guide

Research projects are a specific type of projects – 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.

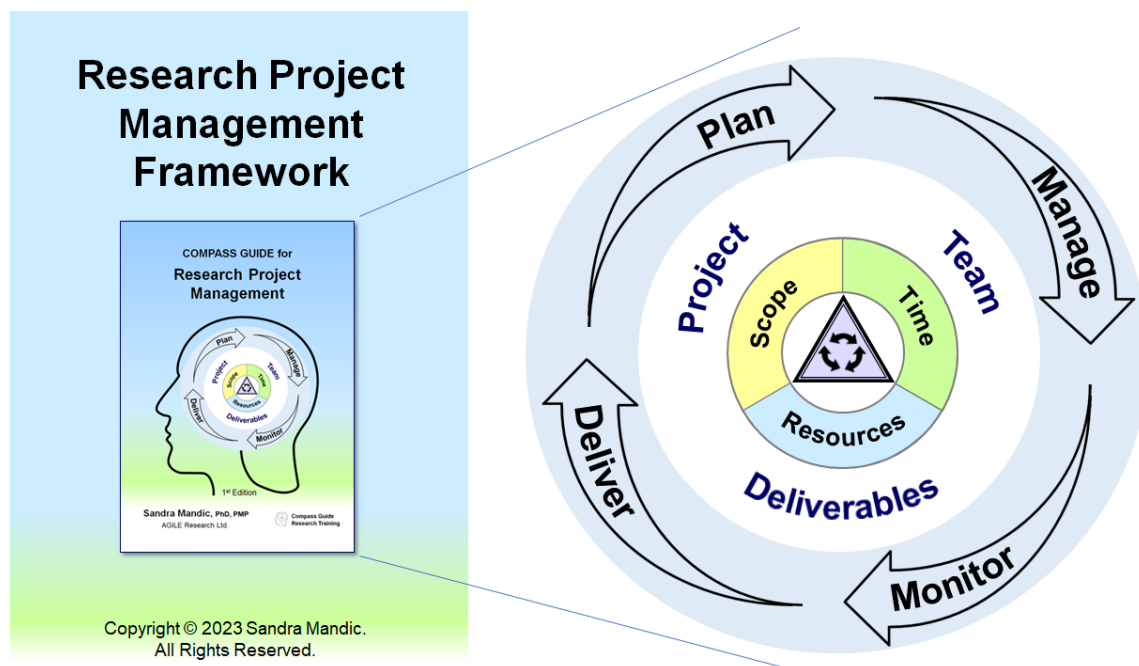
Research projects also have distinct features associated with charting new unexplored territories and uncertainties that are an integral part of such endeavours.

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.



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 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

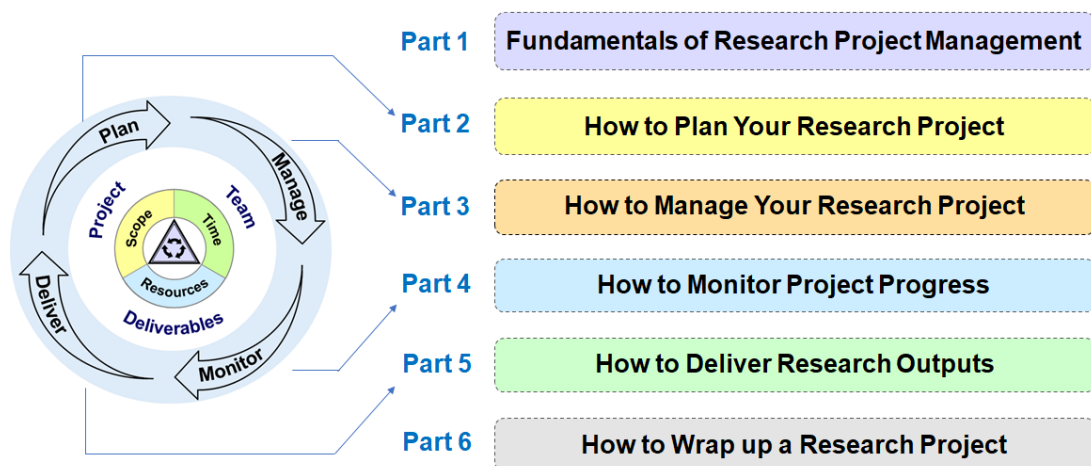
research data storage, managing project team (including stakeholders, if applicable) and managing preparation of research outputs.

[Part 4: How to Monitor Project Progress](#) focuses on monitoring and controlling of 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 a 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



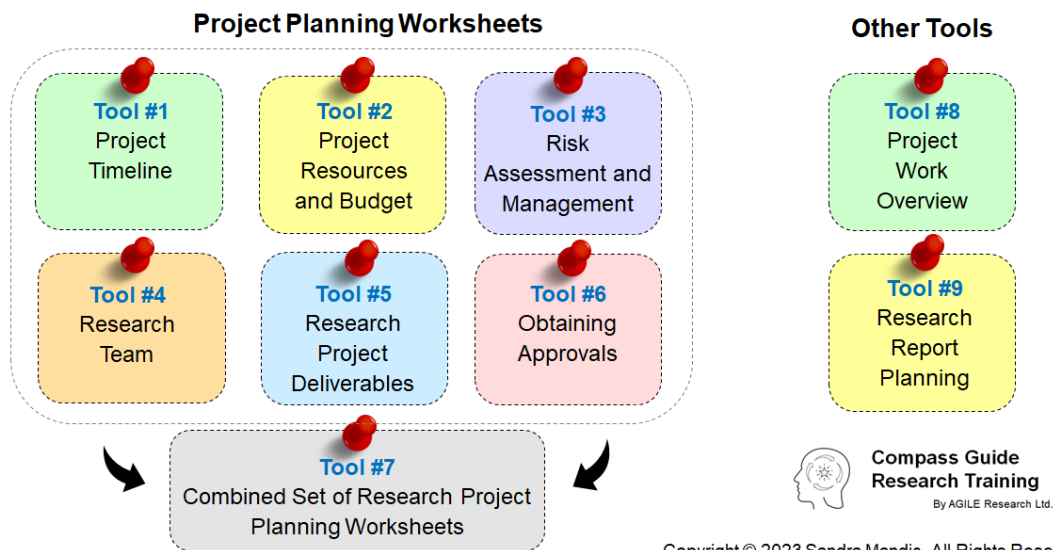
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Research Project Management Tools

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 those 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.

Tools for Research Project Management



Research project management tools included in this Compass Guide:

Tool	Description	Page
#1	Project timeline	47
#2	Project resources and budget	55-56
#3	Risk assessment and management	64
#4	Research team	69-70
#5	Research project deliverables	73
#6	Obtaining approvals	80
#7	Combined set of research project planning worksheets	86-94
#8	Project work overview	111-112
#9	Research report planning	155

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 the 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 achieved a 100% school recruitment rate in Dunedin, New Zealand, twice. 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 36 published scientific journal articles (published across 17 scientific journals), 166 scientific conference abstracts, 54 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>*

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 Acknowledgments

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...

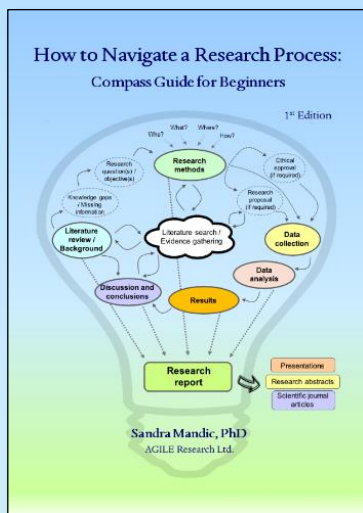


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Compass Guide for Beginners



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Compass Guide for Research Project Management



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