



Prifysgol Cymru

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Technology and Architecture:
How does this impact and change our built environment,
through advances and approaches to design?

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INTRODUCTION

Technology has advanced rapidly in the last century, having left a lasting impact on architecture and the world, with the ever-evolving power of modern computing and simulations still changing how we approach current problems with new innovative methods. Since the invention of early “computers” in the ~1940s the size of devices has only decreased, with the processing capacity increasing exponentially. The digital age has had a massive impact on architectural design, providing the necessary tools to design complex structures that are sustainable, efficient and built to last. With increasing concerns on environmental impacts from construction, and global governments setting net-zero emissions as a goal, technological advances help to provide analytics and simulation capabilities that weren’t possible previously. This can be something as simple as preventing cold bridging in a small home through simulations to allowing for skyscrapers to reach heights yet unseen through the integration of devices such as Tuned Mass Dampers (TMDs).

My thesis will focus on researching the changes in architecture due to technology, and how this has impacted changes in design philosophy, sustainability and materials used in construction, to answer the question: “How does this affect our built environment”. I will be considering how designs of structures have been affected by technology, the impacts on safety and longevity and the rise of innovation through changes in styles, size and shape of structures.

My main goal with this research is to determine if technology has made the art of architecture complacent, or if it has allowed designers to create new designs that were not possible without the assistance of improved technology.

MAIN STRUCTURE

The main research of my dissertation will focus on tools such as BIM for visualisation and analysis, case studies of structures integrating technology such as the Citicorp centre in Manhattan to withstand weather conditions, or sustainable design like that of Amager Bakke by BIG that incorporates multiple uses to a waste management plant. This is to understand how architecture has changed throughout recent history, and whether this is beneficial to the overall design of buildings, be it through ornamentation or complexity.

AIMS AND OBJECTIVES

I aim to determine if technological advancements have created complacency in design, or if this is a necessary step to a sustainable future where new and creative designs will be implemented. Achieving this will require me to cross examine current and past structures at similar scales, how current sustainability goals affect designs, the ethics of technology such as AI in assisting designers, and if contemporary styles are likely to last.

RESEARCH

The main source of my research will be from design magazines throughout the years, documentaries, potentially interviewing experts in the field, and analysis of materials and designs through case studies and literature.

CONSTRAINTS

Due to the rapidly changing scene of technology, I may have to limit how far my research goes into the latest advancements as adequate research may not be available or may not be feasible to update new information on a regular basis. Ethical issues are unlikely to arise regarding this dissertation topic, however respecting the privacy of potential interviewees will be necessary.

TIMESPAN

RESEARCH (SEP/25 – DEC/25)

Relevant research into the topic and finding sources/interviews

COMPILE (DEC/25 – FEB/26)

Finalising research information

WRITE (FEB/26 – MAY/26)

Writing the finalised dissertation