



# Abstract then methodology

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This study examines **how traditional auto repair shops can adapt to the rise of electric vehicles (EVs).**

As electric vehicles reduce the need for routine maintenance while creating demand for specialized services such as battery diagnostics and software updates, repair shops **face challenges** such as skills gaps, high investment costs and safety concerns.

In response, they may be retraining staff, investing in new tools, diversifying services, and embracing digital technologies. Or, nothing was done about it.

In order to study the ability of traditional maintenance shops to adapt to the changing market trends, the following research methods will be used.



# methodology - questionnaire, tools, methods

This study adopted a **mixed method combining quantitative survey and qualitative interviews**.

**Quantitative data** were collected through a questionnaire survey of traditional auto repair shops across Taiwan.

The surveys collected detailed information on store characteristics, management background, current service practices, and the extent of strategic adjustments to address the rise of electric vehicles.

Meanwhile, **qualitative data** were obtained through **in-depth interviews with store owners and technicians** to explore their perceptions, attitudes, and practical challenges they faced during the technological transformation process.

This dual approach allows for **cross-validation of findings**, providing both broad statistical insights and detailed contextual understanding.

In addition, the study incorporates **cross-sectional analyses** to compare responses based on factors such as store size, location, and resource availability, and plans to conduct longitudinal data collection to observe changes over time.



# methodology - questionnaire, tools, methods

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**Y:** "How repair shops are adapting to the rise of electric vehicles" Measured by specific quantitative indicators:

1. No intention to perform any EV-related maintenance;
2. Concerned about this matter and considering making relevant preparations;
3. Always pay attention to the development of EV and seek cooperative maintenance methods;
4. Have tried to learn or invest in equipment improvement;
5. Have received relevant professional training

**X:** "Factors that may influence or explain the transformation strategies adopted by repair shops"

**x1 Size:** Store size (small, medium, large)

**x2 Age:** Age of the operator

**x3 Resources and Capabilities**

**x4 Technology and employee skills**

**x5 Ability to obtain (technical and market) information**

**x6 Changes in customer needs**

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## **In-depth interviews with store owners and technicians, the main concept**

1. Understanding and opinions on electric vehicle maintenance technology
2. Measures taken and experience (personnel, equipment, investment)
3. Anticipated future development strategies and response plans
4. Difficulties, resource requirements and security considerations