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**Y01**



# Sustainable Transformation: How Innovation Intermediaries Facilitate Sustainable Innovation

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## ABSTRACT

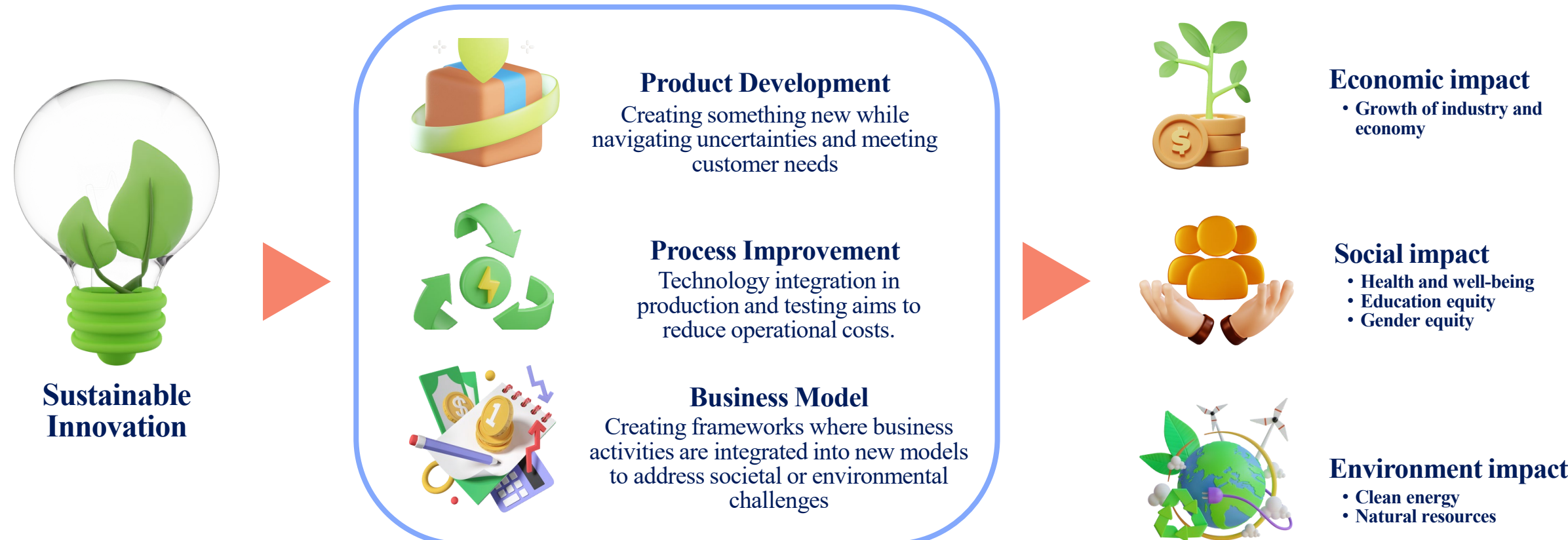
This study investigates the challenges of developing sustainable innovation and underscores the pivotal role of science parks as innovation intermediaries in addressing these barriers. Drawing on interviews with participants from 20 university-industry collaboration projects in Thailand competing for the 2023 Thailand Innovation Award, the research focuses on the triple bottom line of economic, social, and environmental sustainability. A thematic analysis of interview data, supplemented by secondary sources, reveals key obstacles to sustainable innovation, including high production costs, unsuitable business models, customer perceptions, and limited market availability. Science parks, in their intermediary role, address these challenges through consultancy, brokerage, mediation, and resource provision. Academically, this study contributes to understanding the evolving role of science parks in supporting sustainable innovation—an area with limited prior exploration. From a managerial perspective, it highlights the significance of university-industry partnerships in translating research into sustainable solutions. The findings suggest that policymakers should collaborate with these intermediaries to develop ecosystems that leverage regional strengths and foster local employment.

## OBJECTIVES

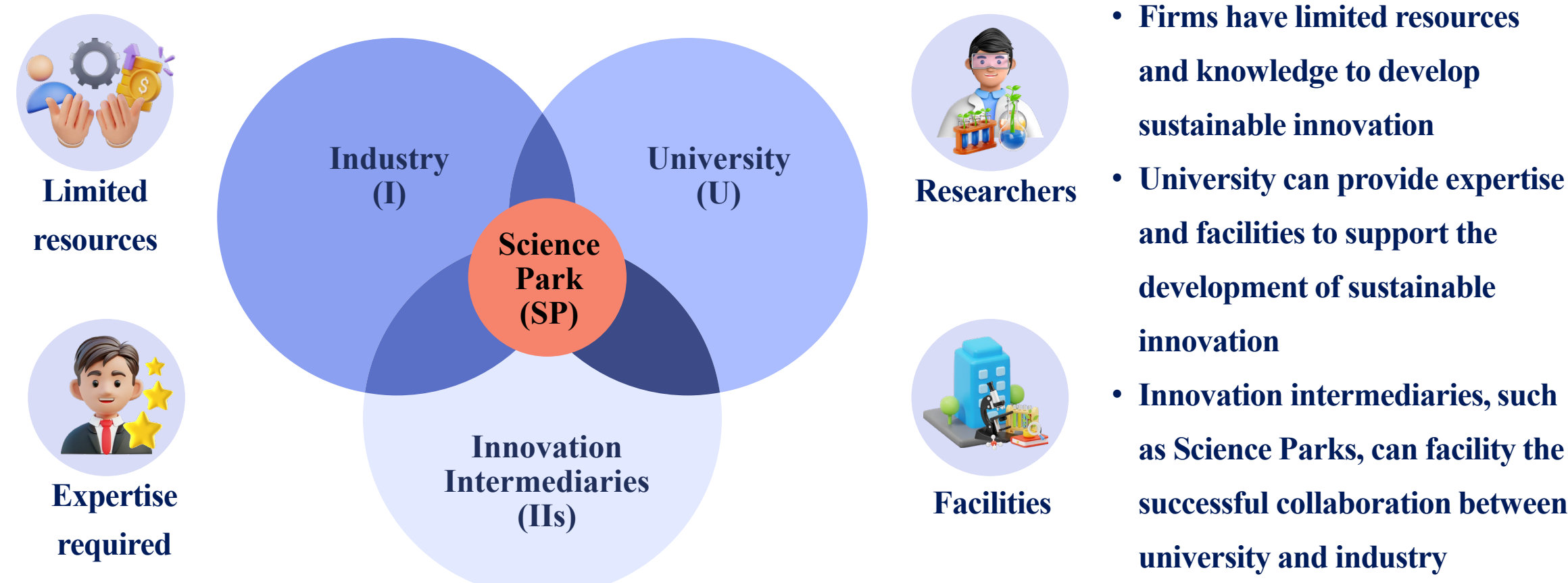
1. To explore the challenges of sustainable innovation for firms in Thailand.
2. To explore roles of Science Parks as innovation intermediaries in facilitating sustainable innovation.

## INTRODUCTION

### Sustainable Innovation



### Challenges and needs for innovation intermediaries to support

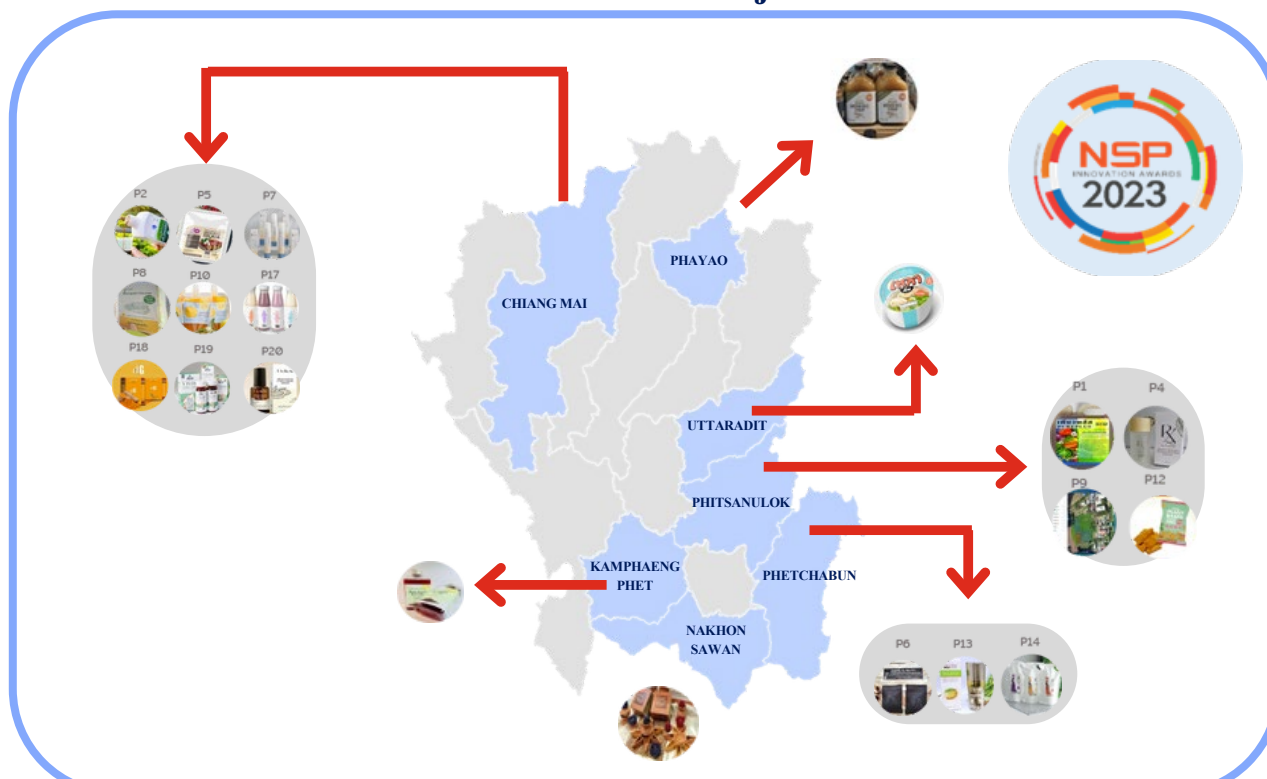


### Research Methodology: : Case Studies & Data Collection Methods

#### Semi-Structured Interviews



#### 2023 Thailand Innovation Awards Projects in Northern Thailand



## CONTRIBUTIONS & IMPLICATIONS



### Literature Contributions

- Evidences of how science parks evolved their traditional roles to support sustainable innovation
- Evidence of the roles of science parks in developing countries



### Implications for Policymakers

- Policymakers should design activities that build business ecosystems to support sustainable innovation
- Policymakers should analyze regional resources and employ local labor to support sustainable innovation



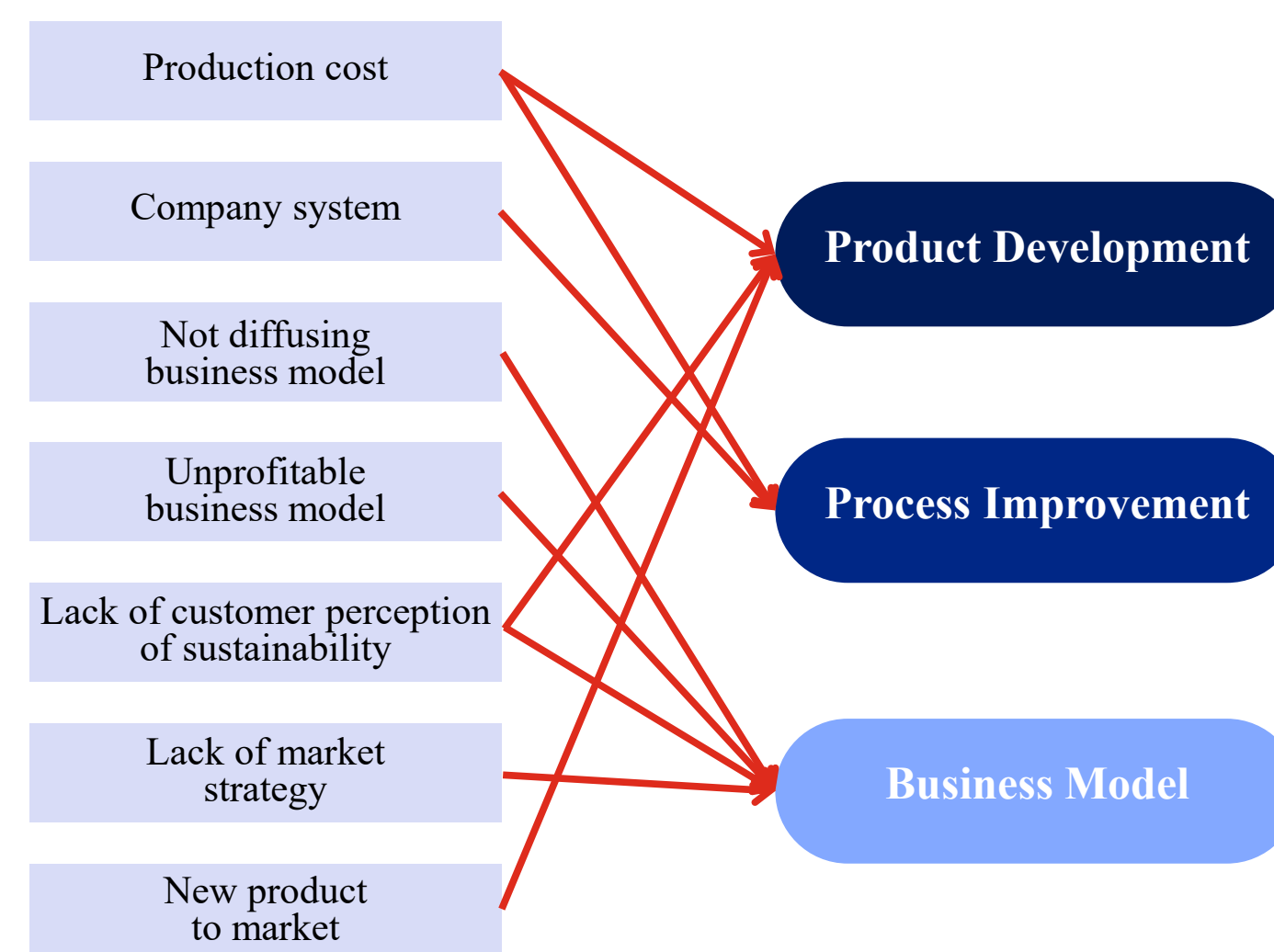
### Implications for Industry

- Industry should recognize the use of local resources to stimulate their profits and collaboration with university and innovation intermediaries to overcome difficulties in sustainable practices

## RESULTS AND DISCUSSION

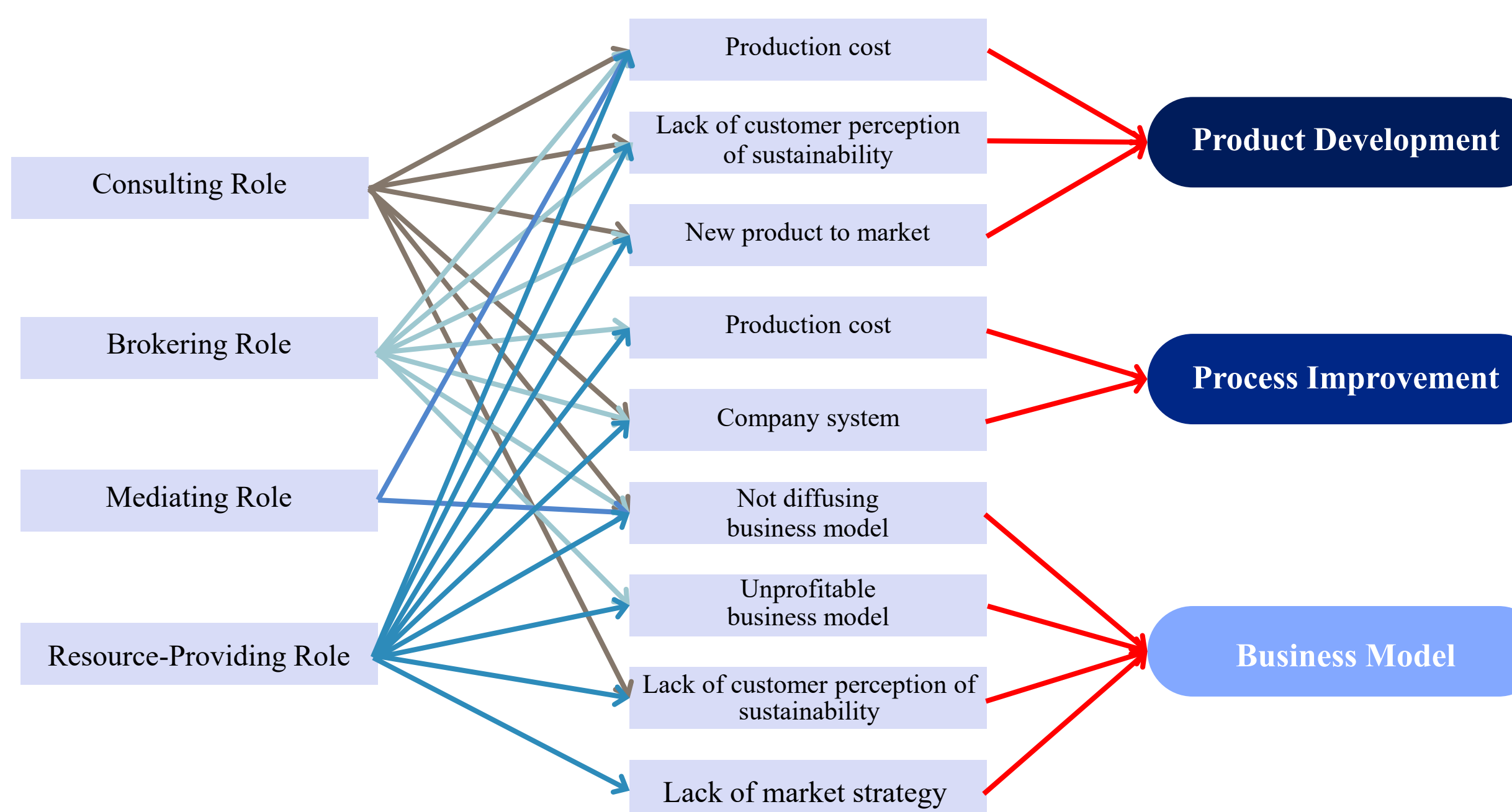
### What are the challenges of sustainable innovation for firms in Thailand ?

### Challenges of Sustainable Innovation Development



### What roles do Science Parks, as innovation intermediaries, play in facilitating sustainable innovation, and how do these roles contribute to the effectiveness of sustainable innovation ?

### Roles of Innovation Intermediaries and their impacts



## CONCLUSION

This research examines the role innovation intermediaries in supporting sustainable innovation, expanding beyond their traditional roles in the context of developing countries by addressing challenges related to product development, process improvement, and business models. It then links the key roles of innovation intermediaries to these challenges, highlighting their importance in fostering sustainable practices.

## ACKNOWLEDGEMENT

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**Y02**



# Can comics change the perception of biodiversity?

## The case of Thai comics from 1970 to 1990

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### 1. ABSTRACT

This study explores the representation of biodiversity in Thai comic books, focusing on depictions of animal and plant species as well as ecosystems. By analyzing a corpus of 300 issues of Chaiyapruet Katoon published between 1970 and 1990, the research examines how these comics reflect and influence public perceptions of biodiversity. The findings, currently under analysis, will provide insights into the cultural narratives surrounding biodiversity in Thai popular culture and their potential impact on environmental awareness. This study aims to contribute to the understanding of the role of cultural media in shaping attitudes toward conservation and biodiversity preservation.

### 2. OBJECTIVE

The objective of this study is to evaluate the representation of biodiversity in Thai comic books, with a specific focus on depictions of animal and plant species, as well as ecosystems. By analyzing these portrayals, the study aims to understand how Thai comics reflect, interpret, and potentially influence public perceptions of biodiversity and ecological systems during the period of their publication.

### 3. INTRODUCTION

Cultural perceptions of biodiversity strongly influence public engagement with conservation. Popular culture, such as comic books, can help bridge the gap between people and nature. In Thailand, Chaiyapruet Katoon, a comic magazine published between 1970 and 1990, reached over 100,000 readers per issue, highlighting its cultural importance [4][5]. As part of the Indo-Burma biodiversity hotspot, Thailand hosts exceptional species richness but faces significant habitat loss due to urbanization, agriculture, and tourism [1][7]. This study analyzes 300 issues of Thai comic magazines to explore the evolution of representations of living organisms and ecosystems, offering insights into the role of popular media in biodiversity conservation.

### 4. MATERIALS AND METHODS

#### 4.1. Comic sample

The corpus comprises 240 issues of *Chaiyapruet Katoon*, a Thai comic magazine published monthly between 1970 and 1990 by the *Chaiyapruet* publishing house. Each issue contains approximately 50 to 70 pages. The comic samples were sourced from the personal archives of Nicolas Verstappen and the National Library of Bangkok.

#### 4.2. Indicators to assess biodiversity representation

##### The story

- Title of the comic story
- Name of the author in English
- Type of story: adventure, biography, comedy, crime, detective, drama, dystopia, fable, fantasy, history, horror, mystery, philosophy, politics, romance, satire, science fiction, supernatural, thriller, tragedy, and Western, press cartoon.

##### Ecosystems

- According to WWF Biomes
- Ecosystem realm: analyse the images in the comic story and choose the ecosystem realms you can identify based on the image in the following list terrestrial, subterranean, subterranean-freshwater, subterranean-marine, freshwater-terrestrial, freshwater, freshwater-marine, marine, marine-terrestrial, marine-freshwater-terrestrial
  - Number of ecosystems realm

##### Species

- Number of species found in the comic story
- Common names of the species
- Scientific names of the species
- Status of the species: Endemic / Invasive / Endangered

##### The representation of Nature in the story

- Percentage of the image occupied by biodiversity (animals, plants)
- Position of biodiversity (1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> plan)
- Position of biodiversity (centre / side left / side right)
- Type of illustration of nature: cartoon, naturalism, caricature

### 5. RESULTS AND DISCUSSIONS

The results of this study are currently being analysed and will provide insights into the representation of biodiversity in Thai comic books, including depictions of species and ecosystems. These findings will be discussed in the context of cultural and ecological narratives, exploring their potential implications for public perceptions of biodiversity and conservation efforts.

### 6. APPLICATION AND IMPACTS

This research contributes to the broader understanding of the role of cultural media in shaping environmental awareness and biodiversity conservation efforts in Thailand.

### 7. CONCLUSIONS

The conclusions of this research are forthcoming

### 8. ACKNOWLEDGEMENTS

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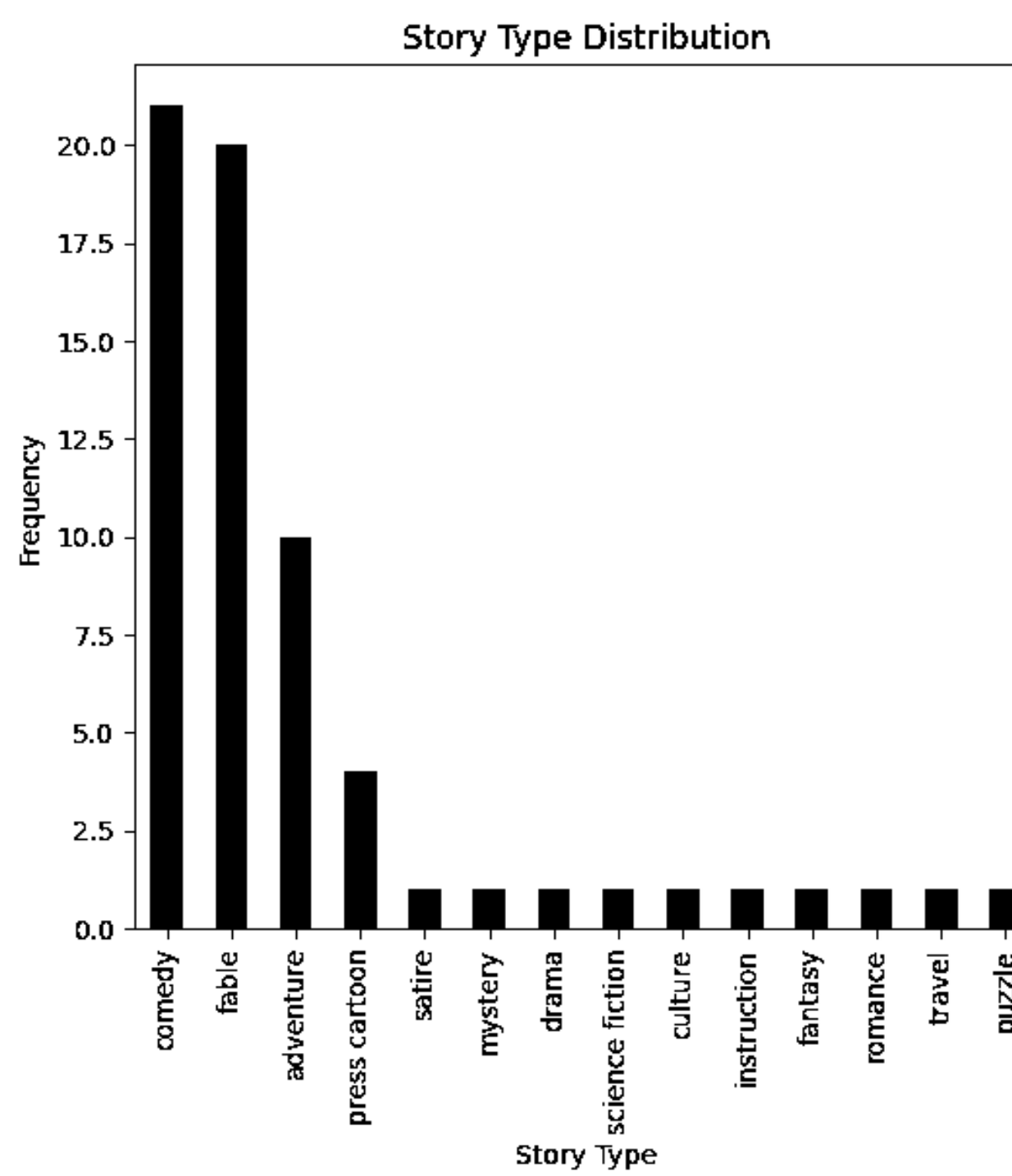
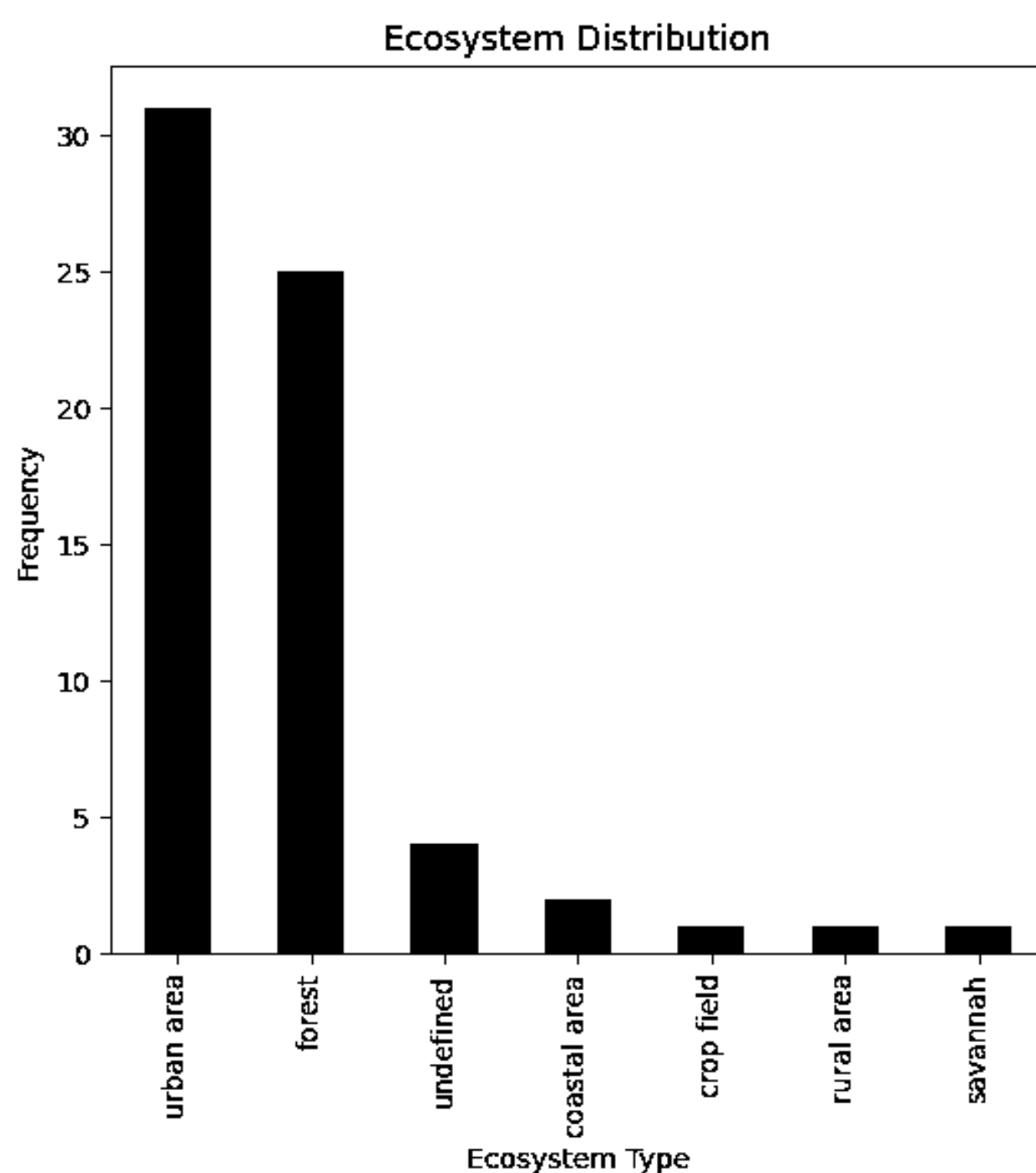
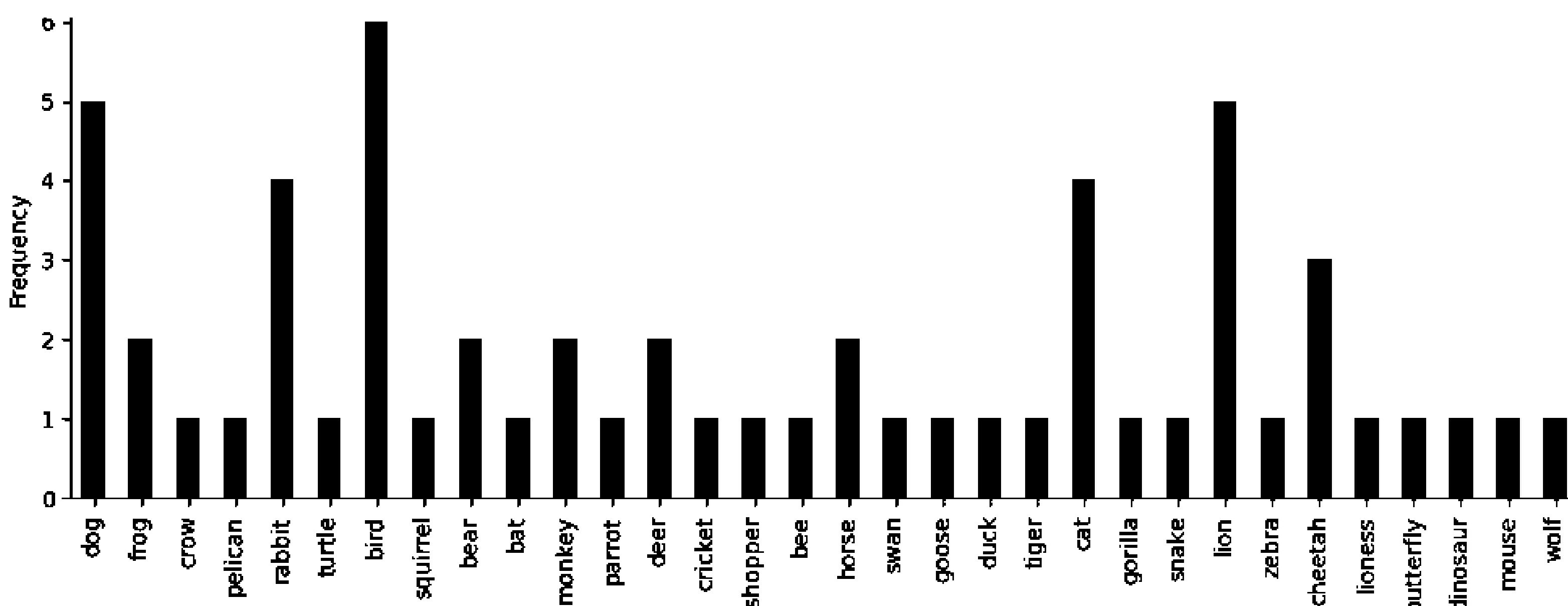
### ILLUSTRATION SAMPLES FROM CHAIYAPRUEK KATOON

Pages extracted from the *Chaiyapruet* magazine, published in April 1971, showcasing the diversity of narrative styles, graphic designs, and representations of animal and plant species within a single issue. Pages 3, 7, 11, 27, 35, 49



### REPRESENTATION OF SPECIES AND ECOSYSTEMS

Preliminary results found from the *Chaiyapruet* analysis published in April 1971.



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