MEASURING THE SPILLOVER EFFECTS OF URBAN ICONS
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PRESENTATION STRUCTURE

INTRODUCTION

FINDINGS

CONCLUSIONS
SOCIETAL CONTEXT

- Evaluation is rarely conducted, despite the often high public investments and ambitions
- Previous investments are not being justified based on effective measurements
- Investment decisions remain to be based on assumptions and ambiguous goals
Most studies employ a **qualitative research** strategy

Research is often focused on **one type of spillover effect**

Many studies are conducted from a **short-term perspective**
PROBLEM STATEMENT

- A methodology is needed by which the spillover effects of urban icons can be quantitatively, comprehensively and longitudinally measured
How can the spillover effects of urban icons be effectively measured?
POTENTIAL OF BIG DATA

- Big data sources can capture a **wide range of variables** at a **high spatiotemporal resolution**

- Big data analytics can be used to **reveal correlations or patterns** between variables
INTRODUCTION

POTENTIAL OF BIG DATA

- Qualitative research:

  SUBJECT \rightarrow THEORY

- Quantitative research:

  THEORY \rightarrow QUANTITATIVE EVIDENCE
INTRODUCTION

POTENTIAL OF BIG DATA

- Qualitative research:
  - Subject
  - Theory

- Quantitative research:
  - Theory
  - Quantitative Evidence

- Big data analytics:
  - Quantitative Evidence
  - Theory
HYPOTHESIS

- By the application of a **big data-based approach**, a **comprehensive** and **feasible** assessment methodology to effectively measure the spillover effects of urban icons can be established.
IMPACT ASSESSMENT METHODOLOGY
BLUEPRINT STRUCTURE

IMPACT ASSESSMENT METHODOLOGY
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BLUEPRINT STRUCTURE

DATA-DRIVEN URBAN PLANNING

BIG DATA-BASED EVALUATION

INTEGRATION OF EVALUATION
IMPACT ASSESSMENT METHODOLOGY

BLUEPRINT STRUCTURE

DATA-DRIVEN URBAN PLANNING

BIG DATA-BASED EVALUATION

INTEGRATION OF EVALUATION
DE MARKTHAL

- Initiated by the municipality of Rotterdam
- Developed by Provast
- Completed in 2014
- Currently owned by Klepierre
IMPACT ASSESSMENT METHODOLOGY

BLUEPRINT

INTEGRATION OF EVALUATION
IMPACT ASSESSMENT METHODOLOGY

INTEGRATION OF EVALUATION

CURRENT SITUATION

- Goals and objectives are often ill-defined
- No measurements have taken place before and during construction
- Evaluation is either not conducted or conducted shortly after completion
- Without evaluation, we cannot learn from experience
IMPACT ASSESSMENT METHODOLOGY

INTEGRATION OF EVALUATION

USE PHASE

INITIATIVE PHASE

CONSTRUCTION PHASE

DEVELOPMENT PHASE
IMPACT ASSESSMENT METHODOLOGY

INTEGRATION OF EVALUATION

INITIATIVE PHASE
- Establishing goals
- Taking into account lessons learnt from previous projects
IMPACT ASSESSMENT METHODOLOGY

INTEGRATION OF EVALUATION

- Defining clear objectives
- Carrying out measurements of current situation
IMPACT ASSESSMENT METHODOLOGY

INTEGRATION OF EVALUATION

CONSTRUCTION PHASE
- Carrying out measurements
- Special attention to potential short-term impacts
due to construction works
IMPACT ASSESSMENT METHODOLOGY

INTEGRATION OF EVALUATION

- Long-term monitoring
- Longitudinal analysis
- Define lessons learnt
IMPACT ASSESSMENT METHODOLOGY

BLUEPRINT

BIG DATA-BASED EVALUATION
Big Data-Based Evaluation

Application of big data sources to effectively evaluate a project based on the relevant features associated with an iconic development.
IMPACT ASSESSMENT METHODOLOGY

BIG DATA-BASED EVALUATION

FEATURES RETRIEVED FROM THE MARKTHAL CASE

- Building programme
- Real estate value
- Real estate developments
- Demographic change
- Visitors
- Economic spin-offs
- Quality of the public space
- Nuisance
- Crime
- Image
- Tourism
IMPACT ASSESSMENT METHODOLOGY

BIG DATA-BASED EVALUATION

★ SLOW FEATURES

- Building programme

★ MEDIUM-SPEED FEATURES

- Real estate value
- Real estate developments
- Demographic change

> 1 YEAR

1 MONTH
IMPACT ASSESSMENT METHODOLOGY

BIG DATA-BASED EVALUATION

FAST FEATURES

- Visitors
- Economic spin-offs
- Quality of the public space
- Nuisance
- Crime
- Image
- Tourism

1 DAY
IMPACT ASSESSMENT METHODOLOGY

BIG DATA-BASED EVALUATION

USERS
IMPACT ASSESSMENT METHODOLOGY

BIG DATA-BASED EVALUATION
IMPACT ASSESSMENT METHODOLOGY

BIG DATA-BASED EVALUATION

TRADITIONAL DATA SOURCES

- Surveys
- Observations
IMPACT ASSESSMENT METHODOLOGY

BIG DATA-BASED EVALUATION

BIG DATA SOURCES

- Social media (e.g. Facebook, Twitter or Instagram)
- Sensors (fixed sensors or mobile sensors)
- Transaction data (electronic payments)
- Check-ins (e.g. OV-chip card)
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DATA-DRIVEN URBAN PLANNING

BLUEPRINT
DATA-DRIVEN URBAN PLANNING

- Enhancing the **effectiveness of the urban planning practice** by the application of **data visualization** and **big data analytics**
The establishment of data visualization tools to help urban planners to understand urban changes and to communicate this with other stakeholders.
DATA-DRIVEN URBAN PLANNING

BIG DATA ANALYTICS

- Examining large data sets in order to reveal hidden correlations or patterns between variables
IMPACT ASSESSMENT METHODOLOGY

DATA-DRIVEN URBAN PLANNING

BIG DATA ANALYTICS

- To gain understanding of the **correlations and patterns** between urban phenomena and influential variables (e.g. context factors or exogenous sources of information)
IMPACT ASSESSMENT METHODOLOGY

DATA-DRIVEN URBAN PLANNING
IMPACT ASSESSMENT METHODOLOGY

DATA-DRIVEN URBAN PLANNING

BIG DATA ANALYTICS
IMPACT ASSESSMENT METHODOLOGY

DATA-DRIVEN URBAN PLANNING

BIG DATA ANALYTICS
IMPACT ASSESSMENT METHODOLOGY

ADDED VALUE

DATA-DRIVEN URBAN PLANNING
- Potential to reveal patterns and applicability in urban planning

BIG DATA-BASED EVALUATION
- Quantitative measurements at a high spatiotemporal resolution

INTEGRATION OF EVALUATION
- Long-term and longitudinal focus
IMPLEMENTATION FEASIBILITY STUDY
IMPLEMENTATION FEASIBILITY STUDY

IMPLEMENTATION FEASIBILITY

- Potential threats to the effectiveness of the prescribed methodology
- Potential obstructions to the implementation feasibility
IMPLEMENTATION FEASIBILITY STUDY

POTENTIAL THREATS

TECHNOLOGICAL IMPLICATIONS
- Data consistency and trustworthiness

SOCIETAL IMPLICATIONS
- Privacy issues
- Ethical concerns
IMPLEMENTATION FEASIBILITY STUDY

POTENTIAL OBSTRUCTIONS

METHODOLOGICAL IMPLICATIONS

- Required culture shift within the municipal organisation
- Willingness of management level to make the required investments
CONCLUSIONS

MAIN RESEARCH QUESTION

- How can the spillover effects of urban icons be effectively measured?
CONCLUSIONS

MAIN RESEARCH QUESTION

- How can the spillover effects of urban icons be effectively measured?

ANSWER

- Municipalities should initiate the required culture shift towards an approach in which research and urban planning are inseparably linked.
- Municipalities should make the required investments to develop a methodology by which evaluation becomes an integral part of the building cycle, big data sources are applied to measure the spillover effects of urban icons and a data-driven urban planning practice is established.
CONCLUSIONS

HYPOTHESIS

- By the application of a **big data-based approach**, a **comprehensive** and **feasible** assessment methodology to effectively measure the spillover effects of urban icons can be established.
CONCLUSIONS

HYPOTHESIS

- By the application of a big data-based approach, a comprehensive and feasible assessment methodology to effectively measure the spillover effects of urban icons can be established

ANSWER

- In the current political, organisational and technological context it remains questionable whether it is feasible to implement the prescribed impact assessment methodology in practice. Therefore, the hypothesis has been disproven
CONCLUSIONS

INCREASING THE IMPLEMENTATION FEASIBILITY

TOP DOWN IMPLEMENTATION

- Political context: need of increased accountability and justification of public investments
- Technological context: less uncertainty about the costs and benefits of the methodology

BOTTOM UP IMPLEMENTATION

- Organisational context: increased support from within the municipal organisation
CONCLUSIONS

RECOMMENDATIONS

FURTHER RESEARCH

- To apply big data analytics to gain more understanding of the spillover effects of urban icons by revealing correlations and patterns between variables

RECOMMENDATIONS FOR PRACTICE

- Critical reflection on the current modus operandi
- Closing the gap between research and urban planning
- Taking the first step
TECHNOLOGY IS READY.
TECHNOLOGY IS READY.

NOW IT IS TIME FOR US TO GET READY.
REFERENCES


Other images: own illustration.