FIG WORKING WEEK 2017
Surveying the world of tomorrow –
From digitalisation to augmented reality
May 29 - June 2 Helsinki Finland

A Participatory Model for the Assessment of Cadastral Survey Systems – Case study report of Hong Kong

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International Federation of Surveyors
Fédération Internationale des Géomètres
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FIG COMMISSION 7
Cadastre & Land Management

THE HONG KONG INSTITUTE OF SURVEYORS
香港測量師學會

THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

Backgrounds

1990s ~

FIG7 continuously benchmarked cadastral systems and land administration systems

2014 ~

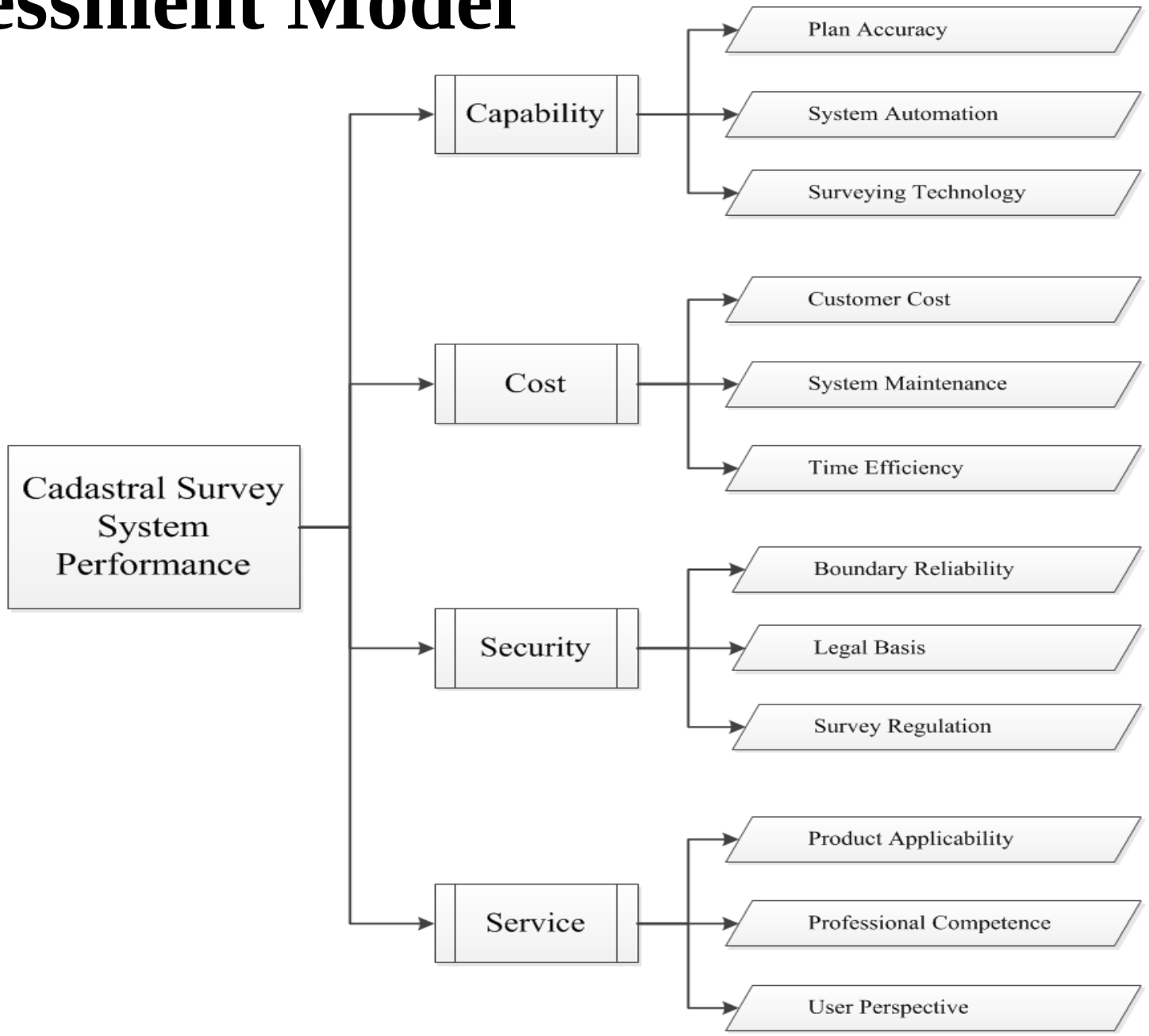
We build an **self-assessment** platform to

- Evaluate the performance of individual **cadastral survey system**; and
- **Participatory** scheme.

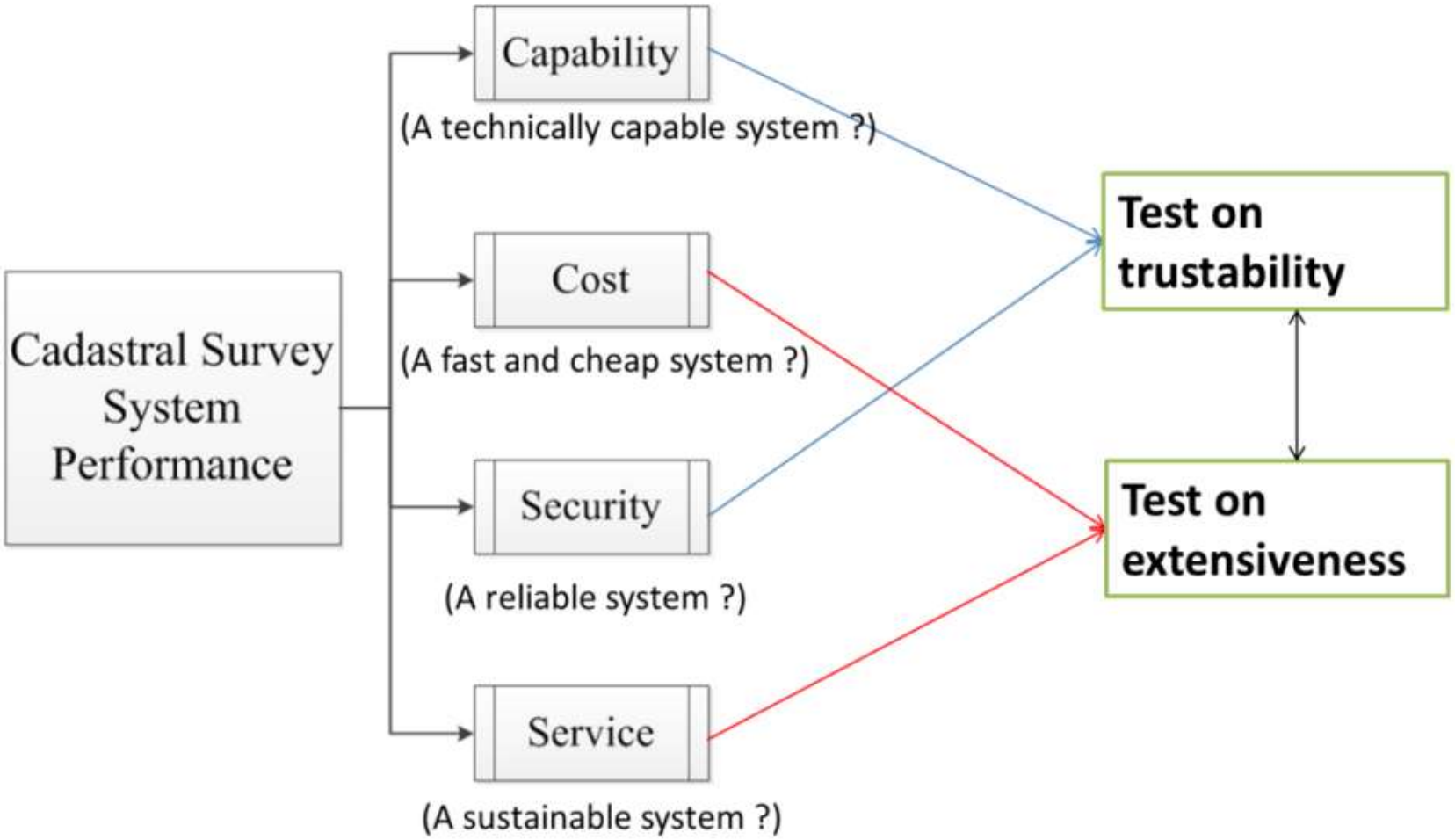
Cadastral Surveying and Mapping:

- Should-be: Fit-for-Purpose
- Influenced by jurisdictional settings and system design
- A performance indicator of land administration system
- Key operator: cadastral surveyors

Assessment Model



Assessment Scheme



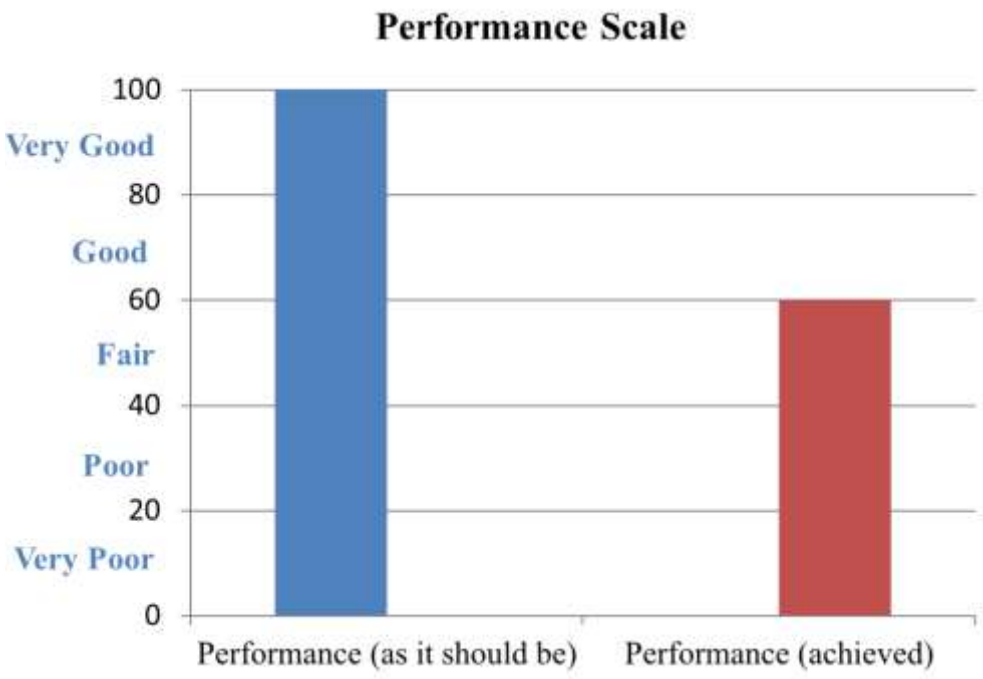
Assessment Contents

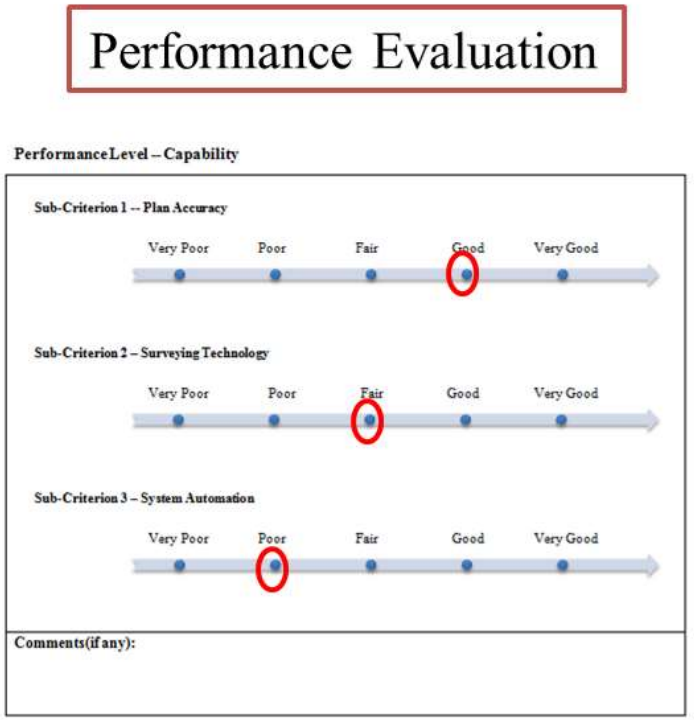
1) Relative importance of the proposed criteria

Calculated based Analytic Hierarchy Process (AHP) algorithm

2) System performance level under each criterion

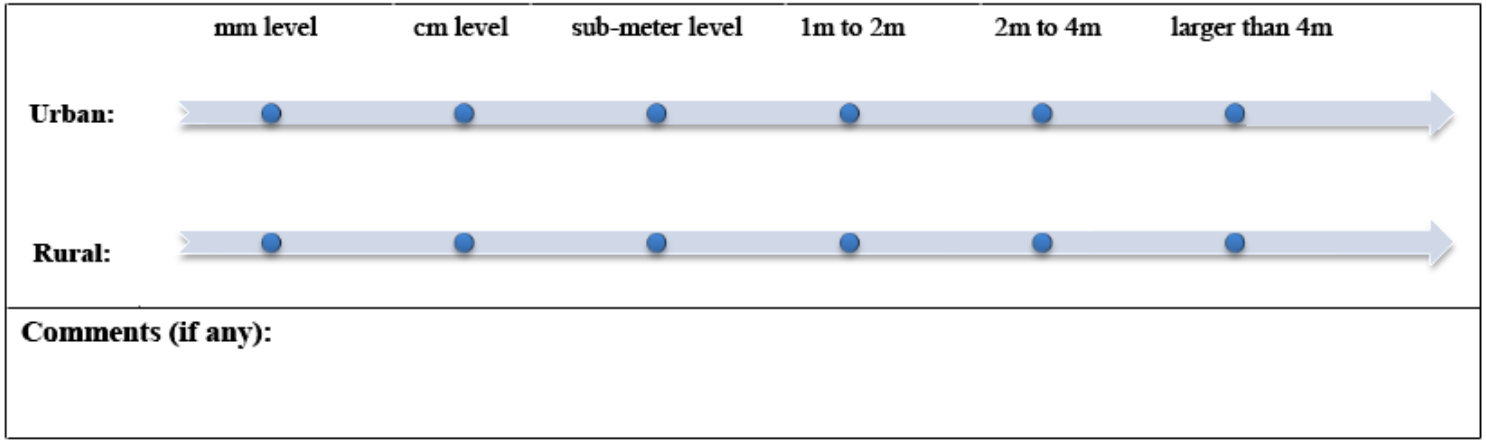
Benchmarking with the ***Should-be Performance***, evaluate the ***Achieved Performance***





3) Information datasets on system purposes/performance

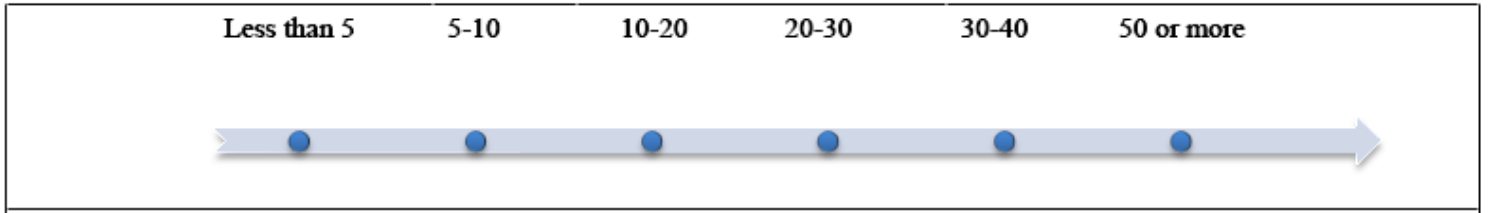
1.1 What is the **user required** level of plan accuracy (ability to locate boundary features)? Please circle the appropriate accuracy level



Comments (if any):

.....

3.1 Averaged number of land boundary dispute cases per year?



Comments(if any):

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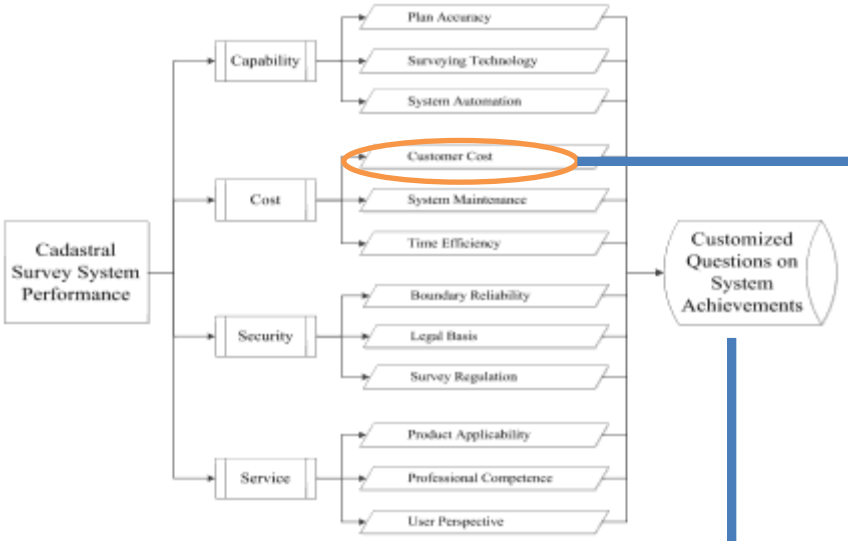
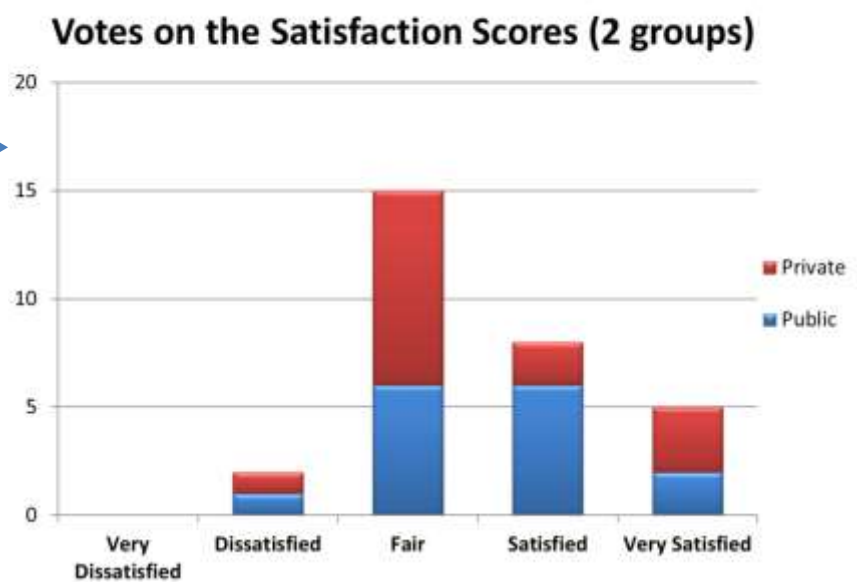
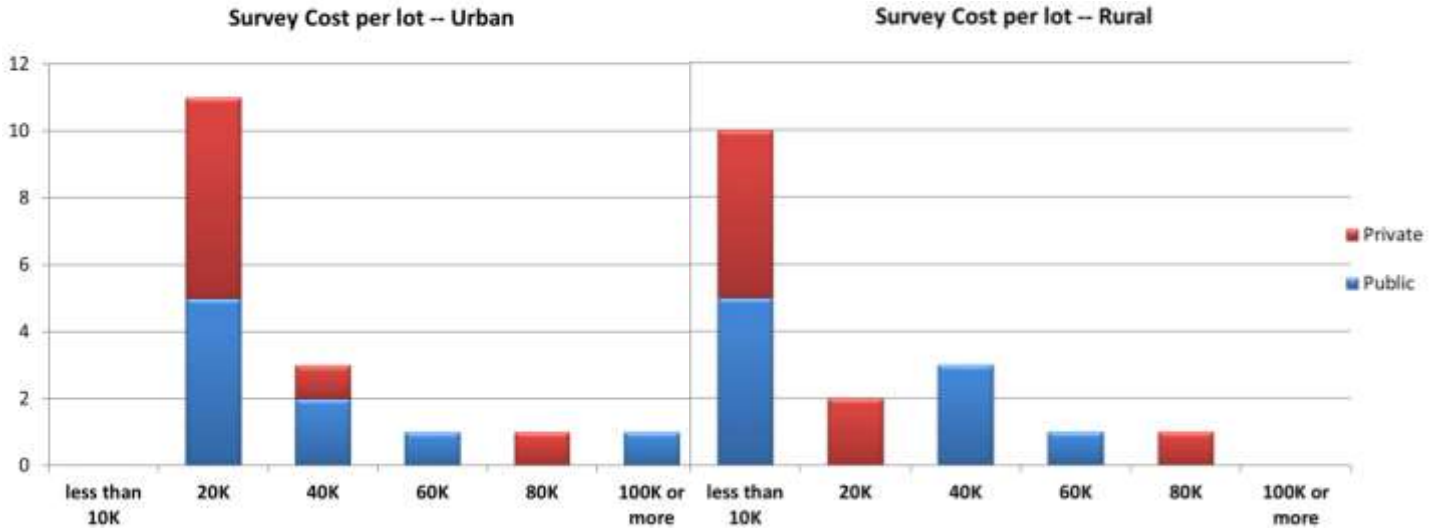


Cost – Customer Cost



Survey Questions on Customer Cost



Implementation in HK

Under the coordination of The Hong Kong Institute of Surveyors, we are collect opinions from land surveyors

Public Sector

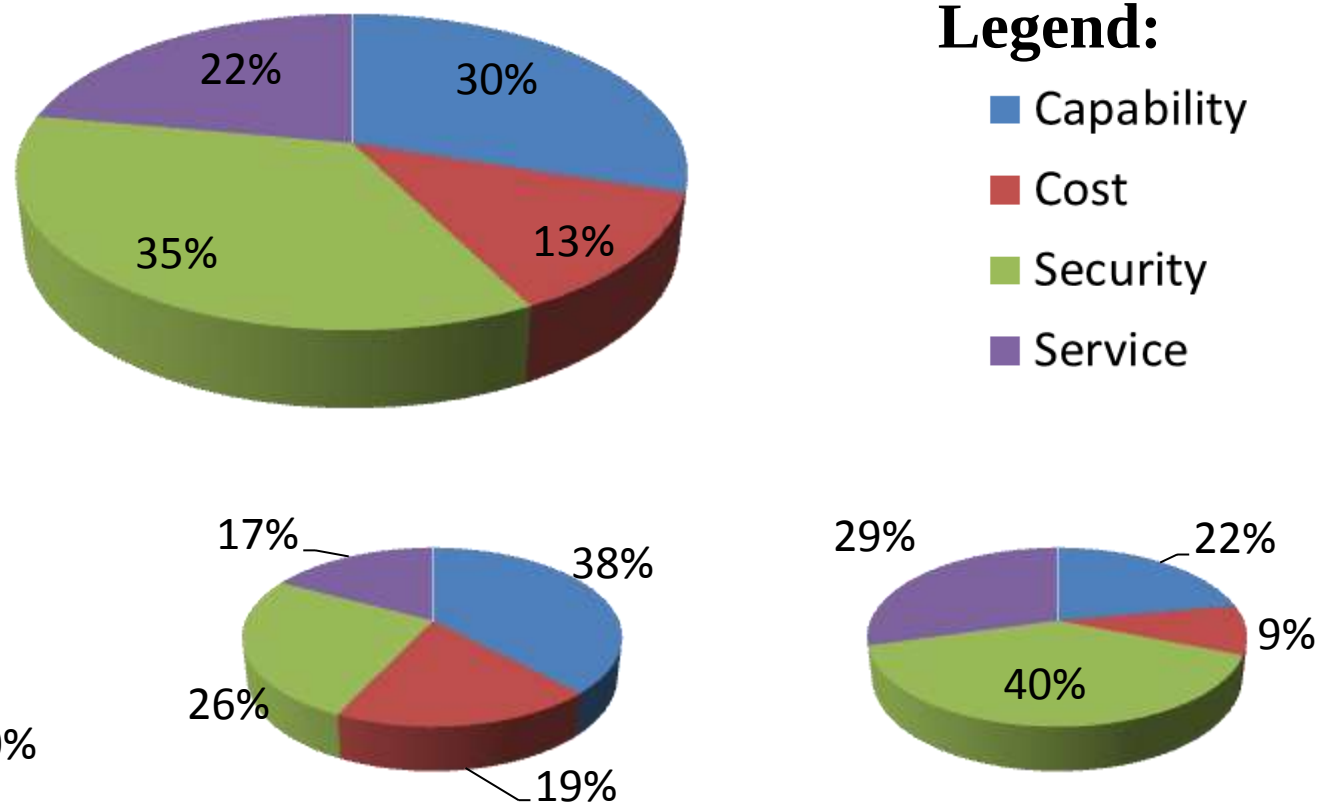
Private Sector

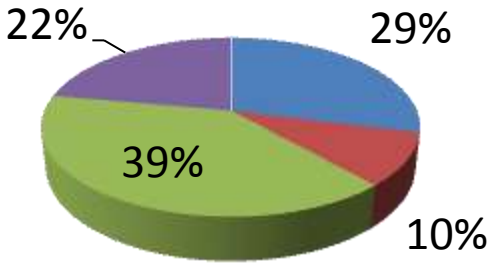
Young Surveyor

- Sending Questionnaire to its members
- Arranging Interview with its council members
- Analyzing and Summarizing collected feedbacks

Results in HK

1) Relative importance of the proposed criteria





Public Sector (18)

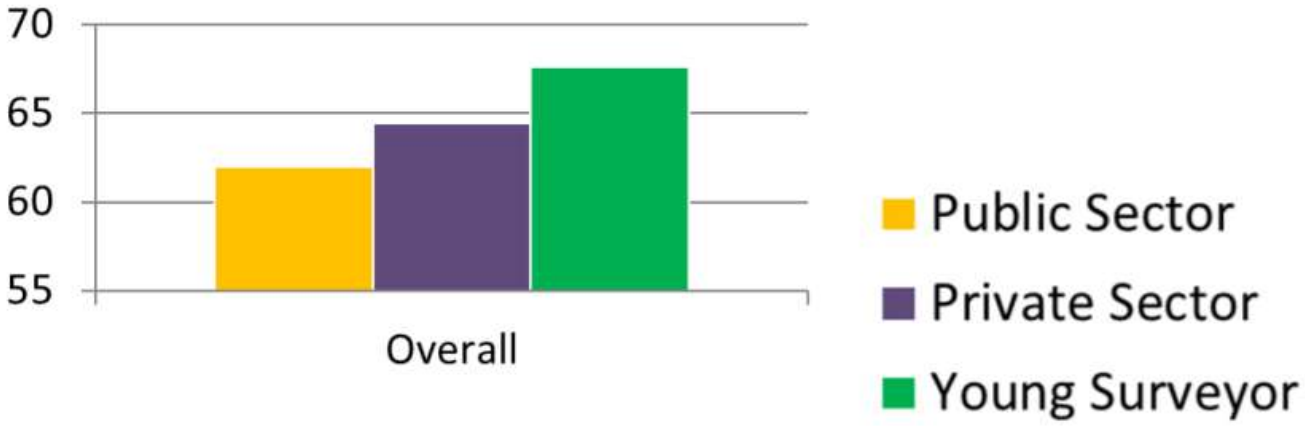
Private Sector (19)

Young Surveyor (15)

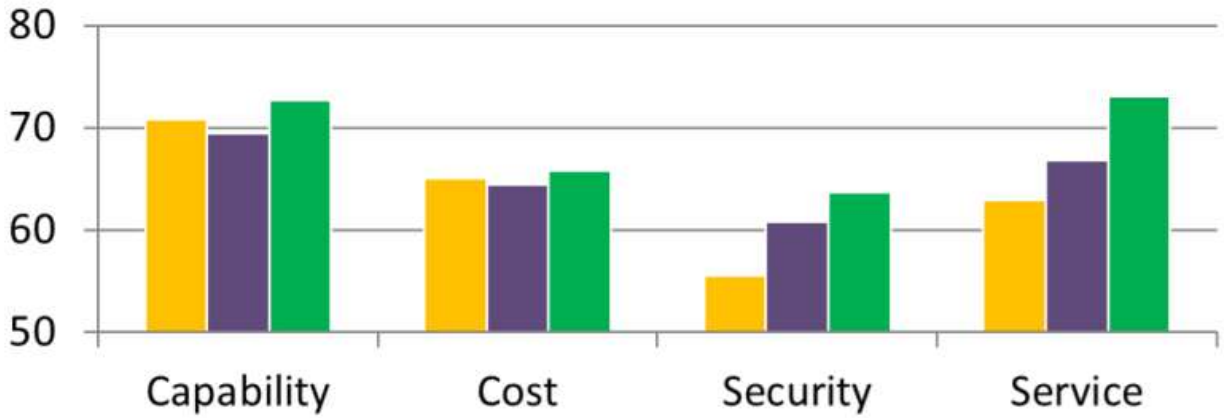
2) Performance Scores

Should-be Performance = 100

1） Overall weighted Score

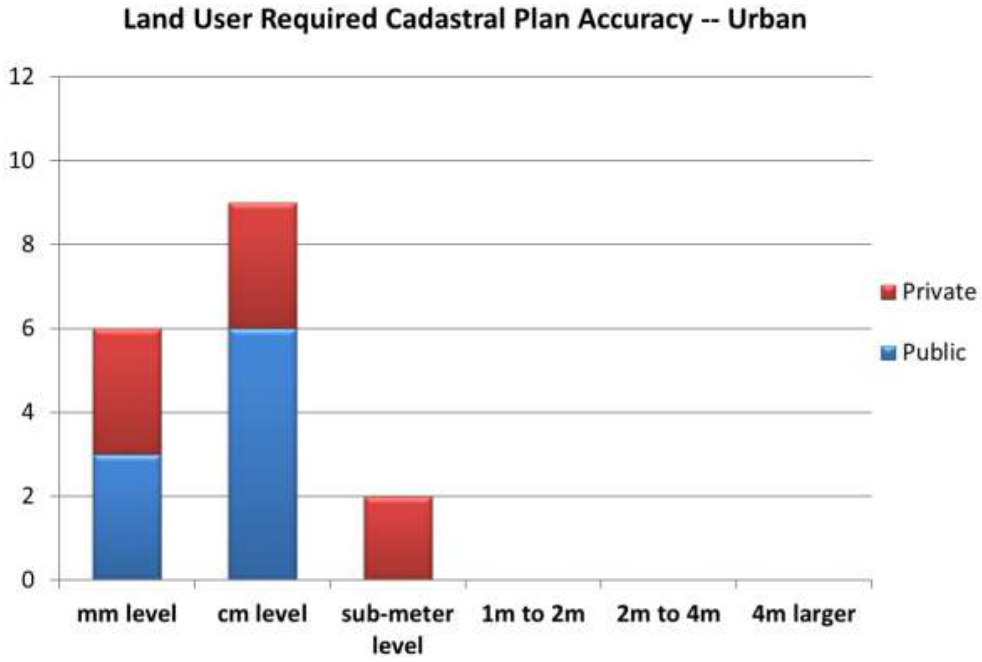


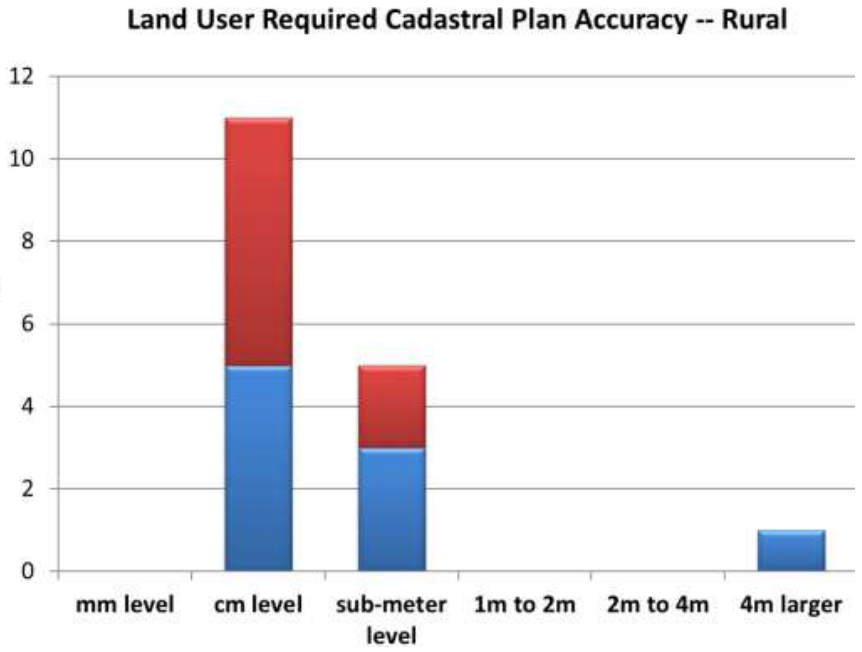
2） Score on each criterion

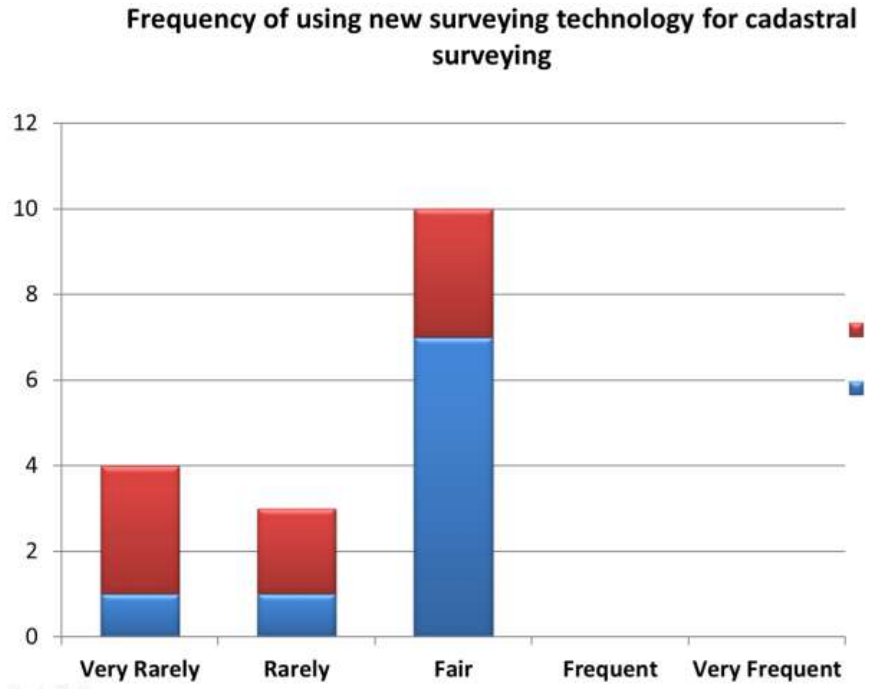


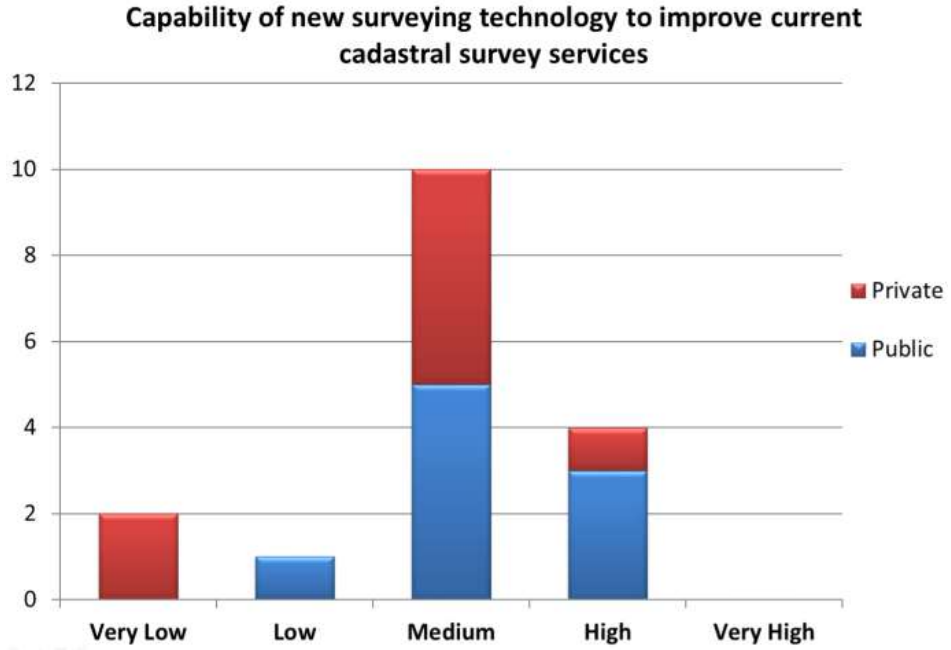
3) Information Datasets

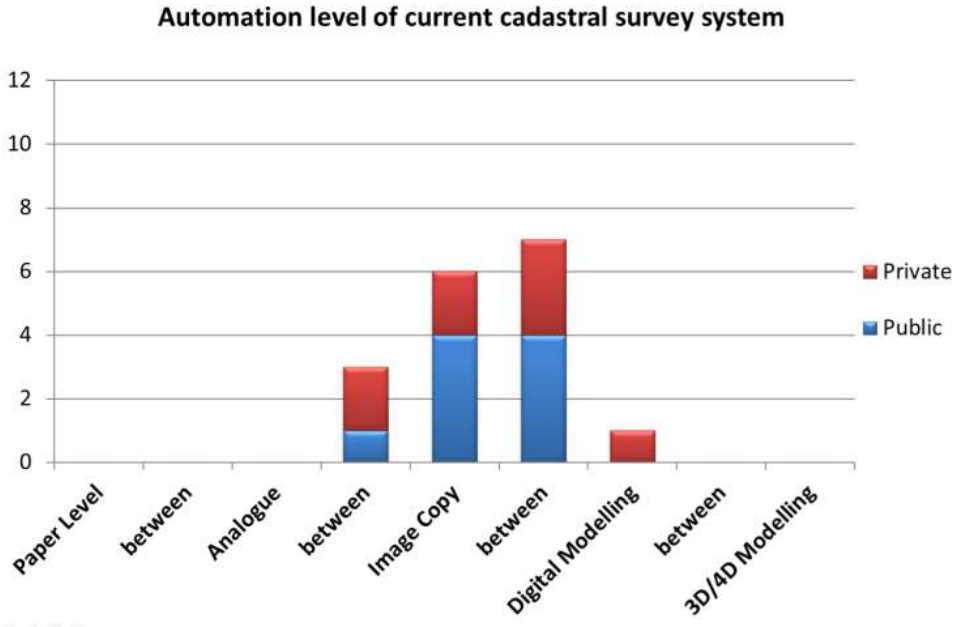
Capability



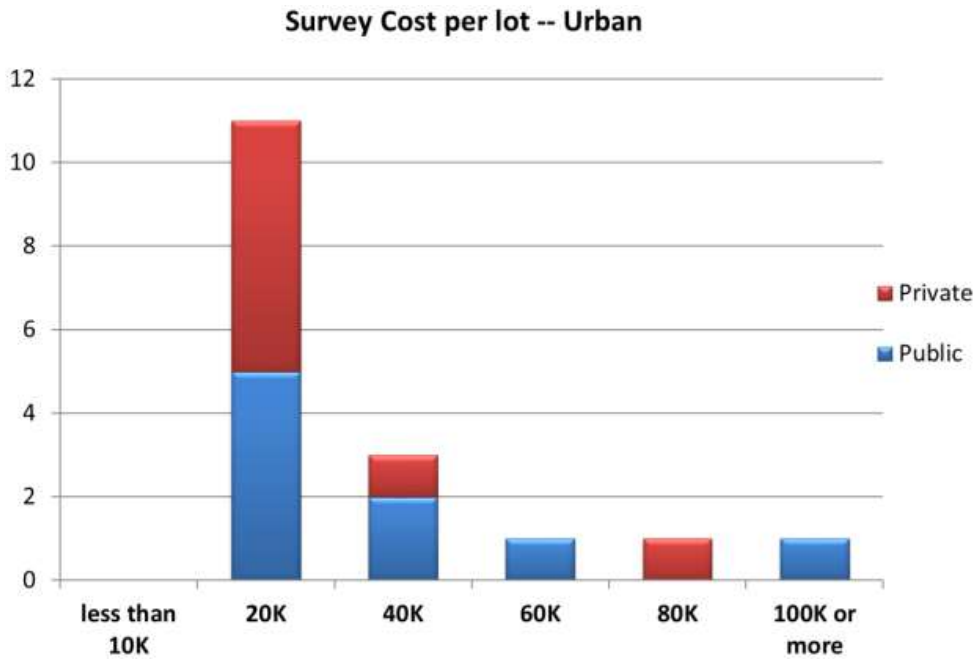


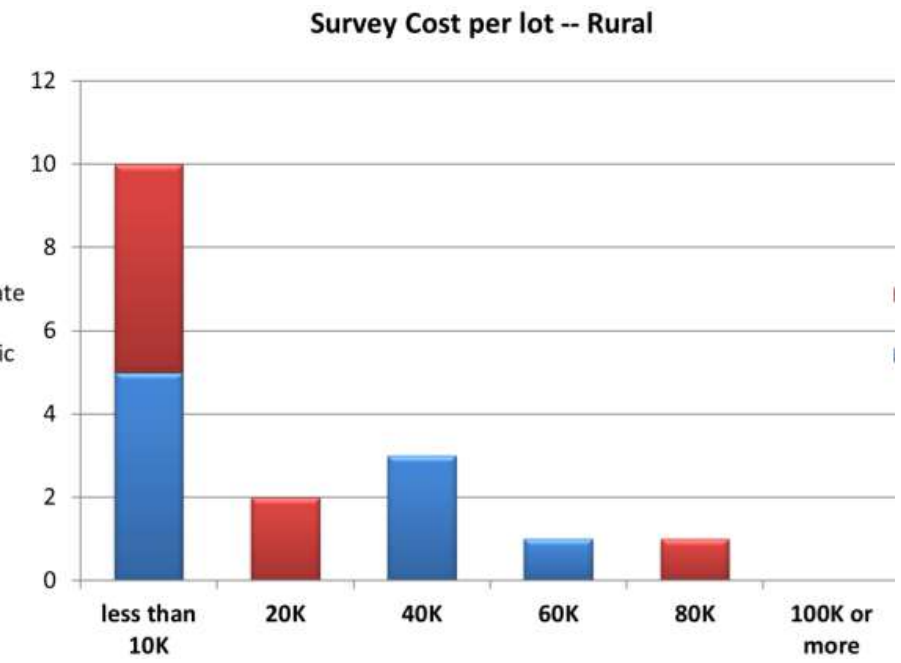

Frequency of using new surveying technology for cadastral surveying
12
10
8
6
4
2
0
Very Rarely
Rarely
Fair
Frequent
Very Frequent

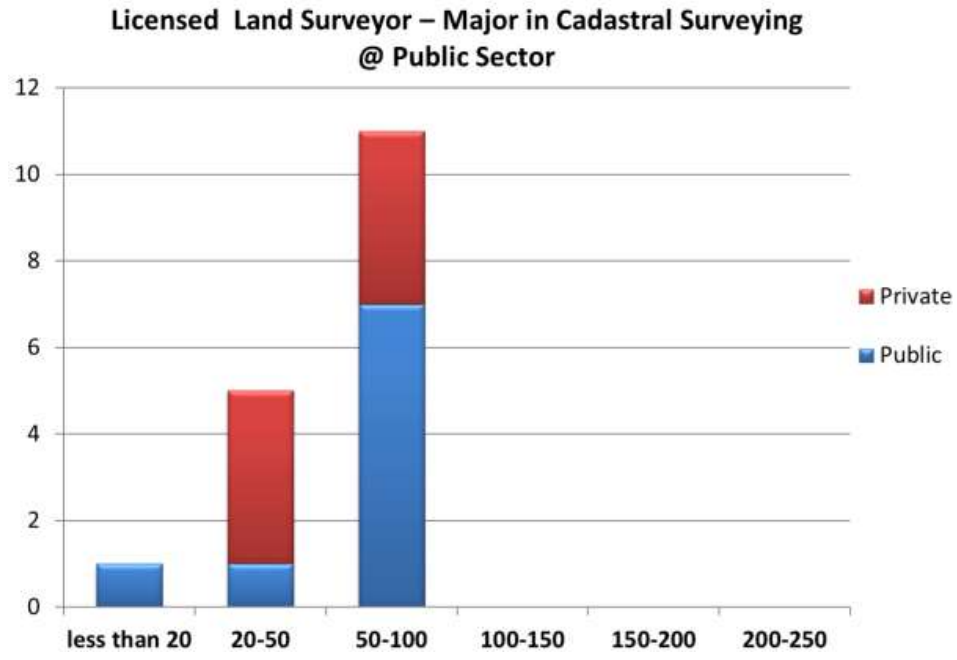

Capability of new surveying technology to improve current cadastral survey services
12
10
8
6
4
2
0
Very Low
Low
Medium
High
Very High
Private
Public

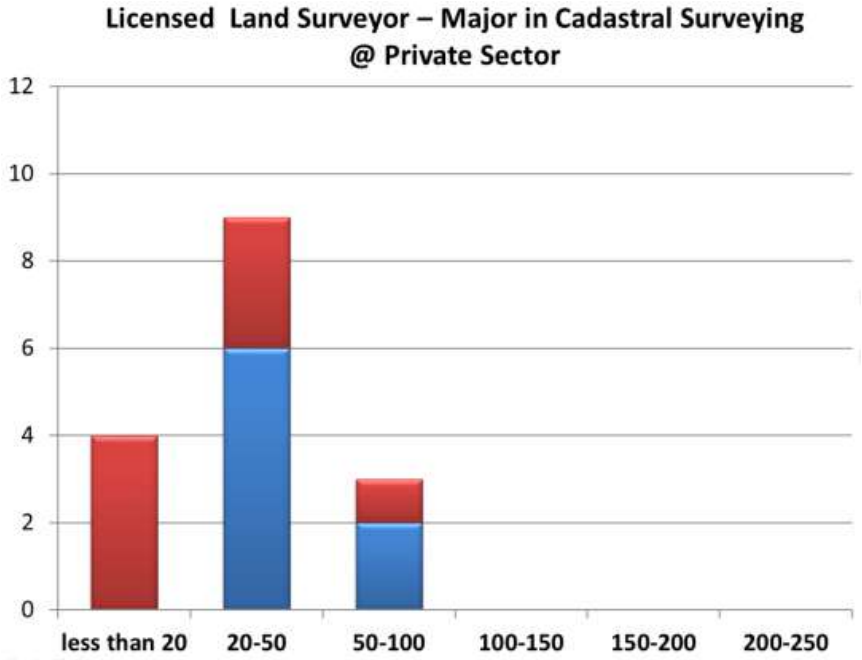

Automation level of current cadastral survey system
12
10
8
6
4
2
0
Paper Level
between
Analogue
between
Image Copy
between
Digital Modelling
between
3D/4D Modelling
Private
Public

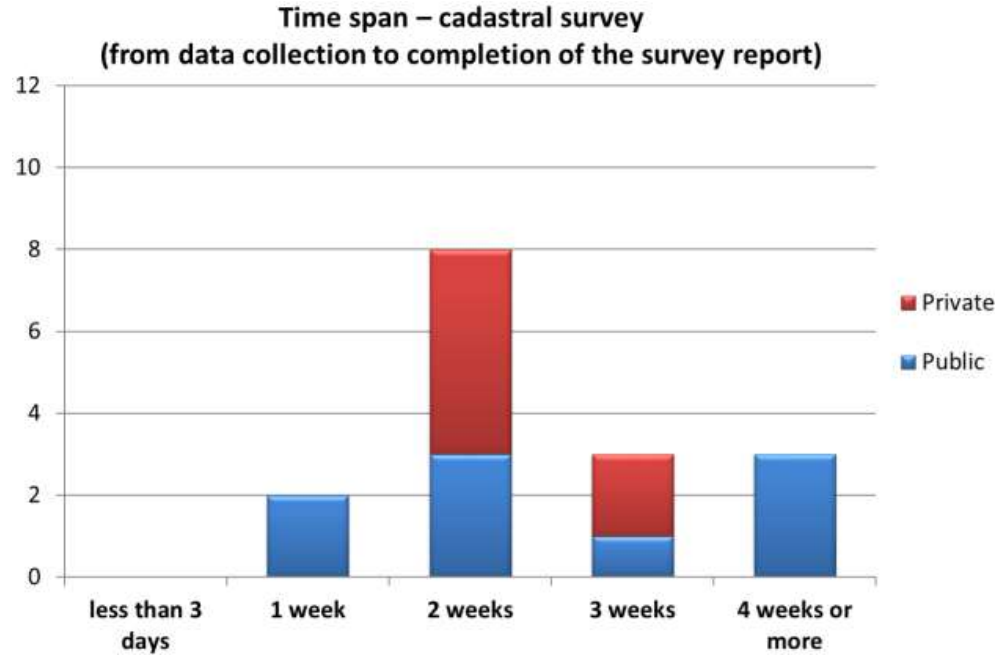
Cost

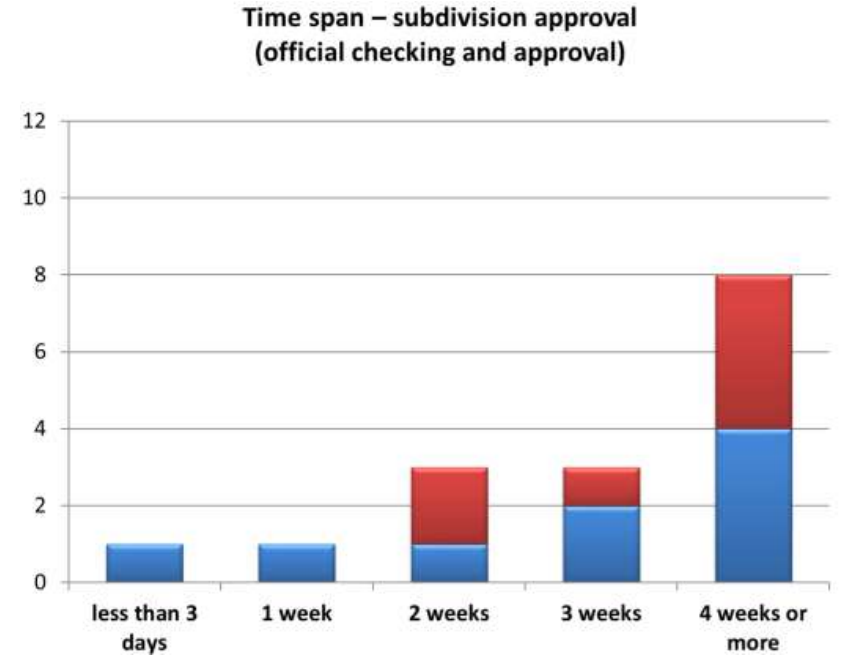

Survey Cost per lot -- Urban
12
10
8
6
4
2
0
less than 10K
20K
40K
60K
80K
100K or more
Private
Public


Survey Cost per lot -- Rural
12
10
8
6
4
2
0
less than 10K
20K
40K
60K
80K
100K or more

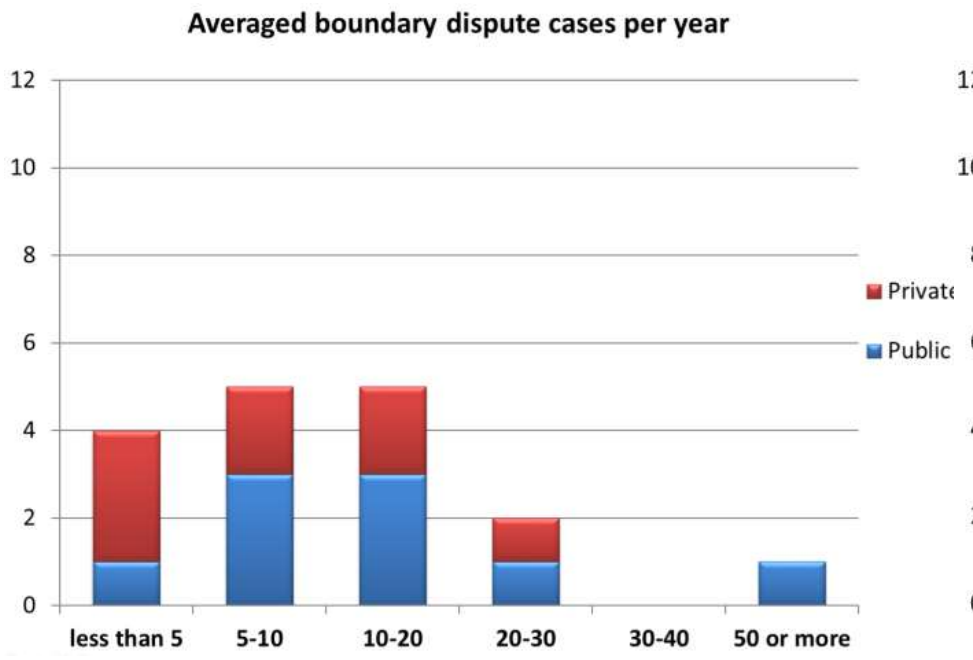

Licensed Land Surveyor – Major in Cadastral Surveying
@ Public Sector
12
10
8
6
4
2
0
less than 20
20-50
50-100
100-150
150-200
200-250
Private
Public

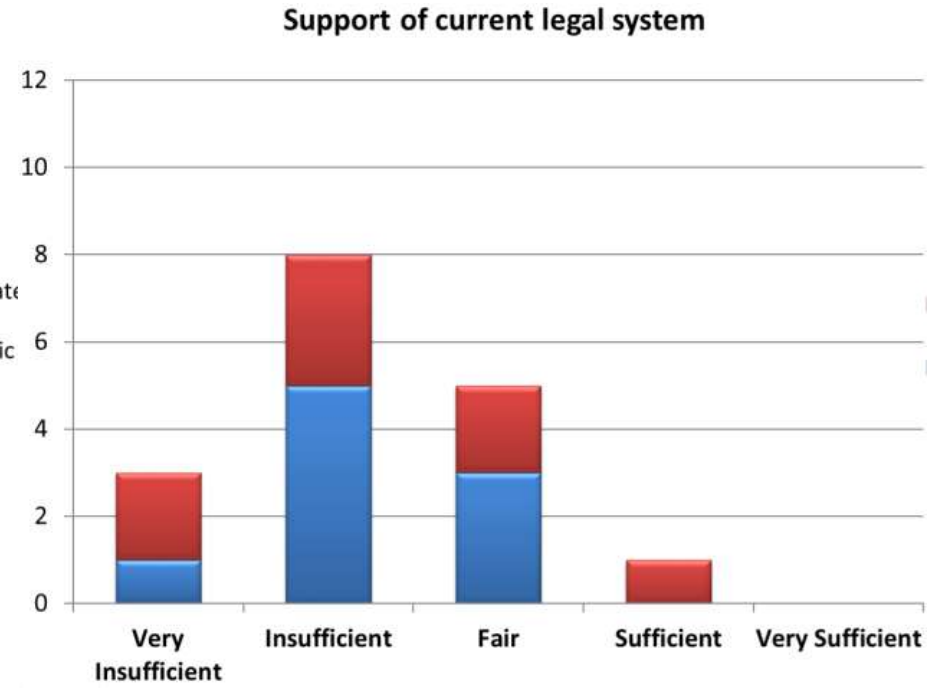

Licensed Land Surveyor – Major in Cadastral Surveying
@ Private Sector
12
10
8
6
4
2
0
less than 20
20-50
50-100
100-150
150-200
200-250

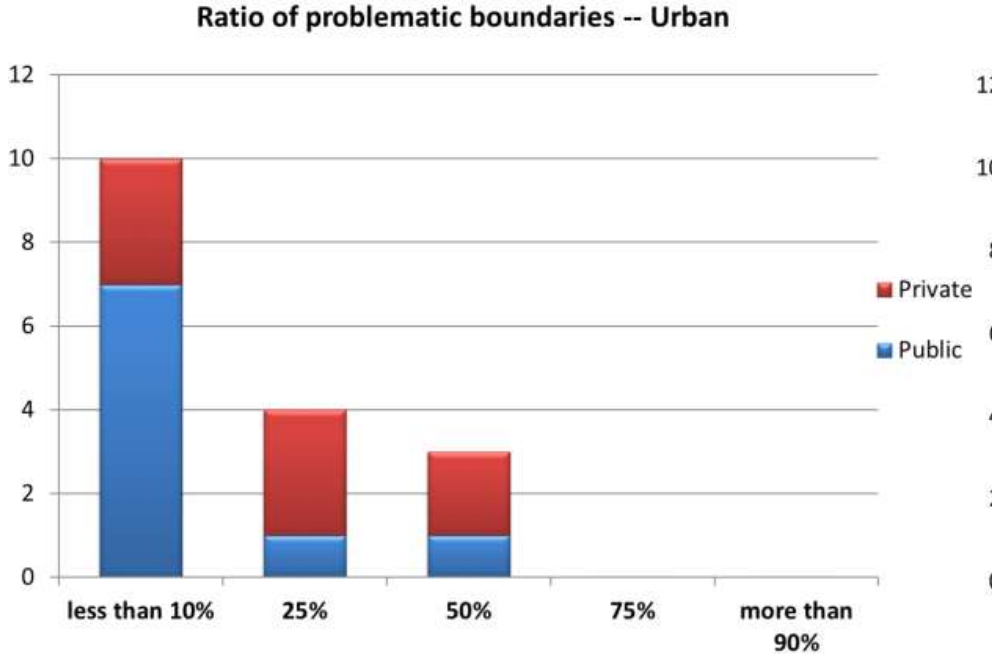

Time span – cadastral survey
(from data collection to completion of the survey report)
12
10
8
6
4
2
0
less than 3 days
1 week
2 weeks
3 weeks
4 weeks or more
Private
Public

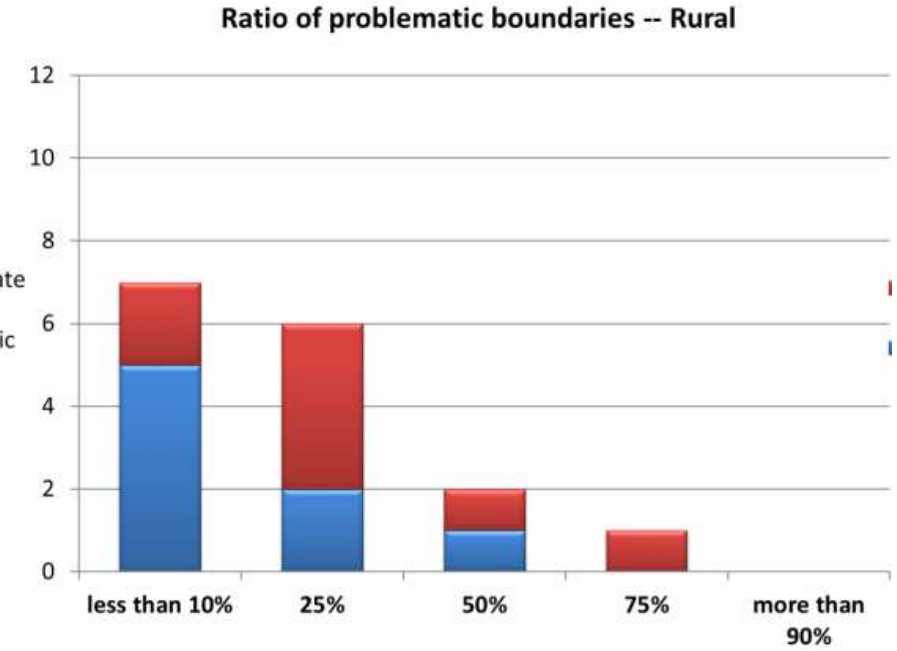

Time span – subdivision approval
(official checking and approval)
12
10
8
6
4
2
0
less than 3 days
1 week
2 weeks
3 weeks
4 weeks or more

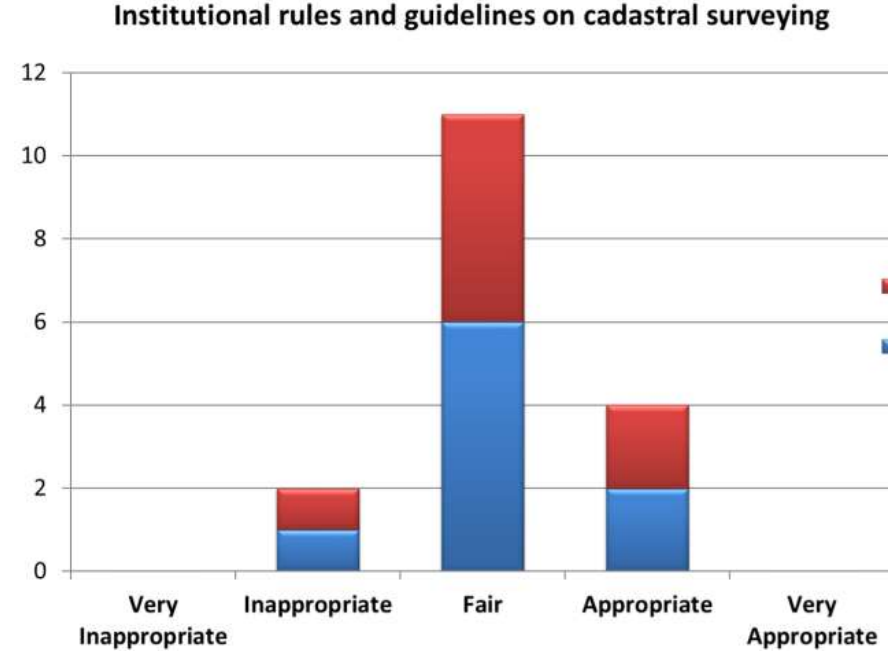
Security

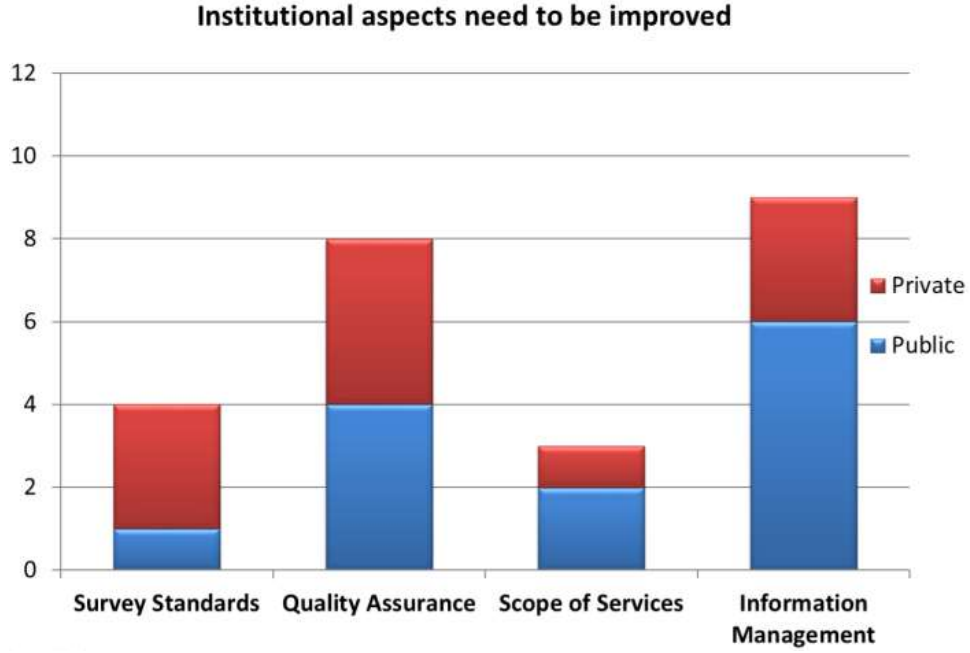

Averaged boundary dispute cases per year
12
10
8
6
4
2
0
less than 5
5-10
10-20
20-30
30-40
50 or more
Private
Public


Support of current legal system
12
10
8
6
4
2
0
Very Insufficient
Insufficient
Fair
Sufficient
Very Sufficient

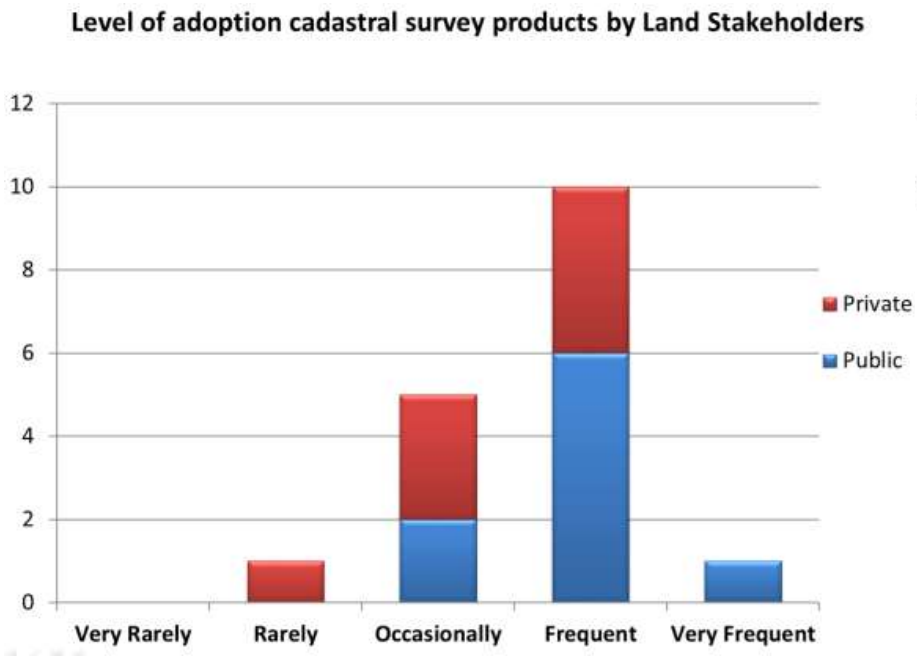

Ratio of problematic boundaries -- Urban
12
10
8
6
4
2
0
less than 10%
25%
50%
75%
more than 90%
Private
Public

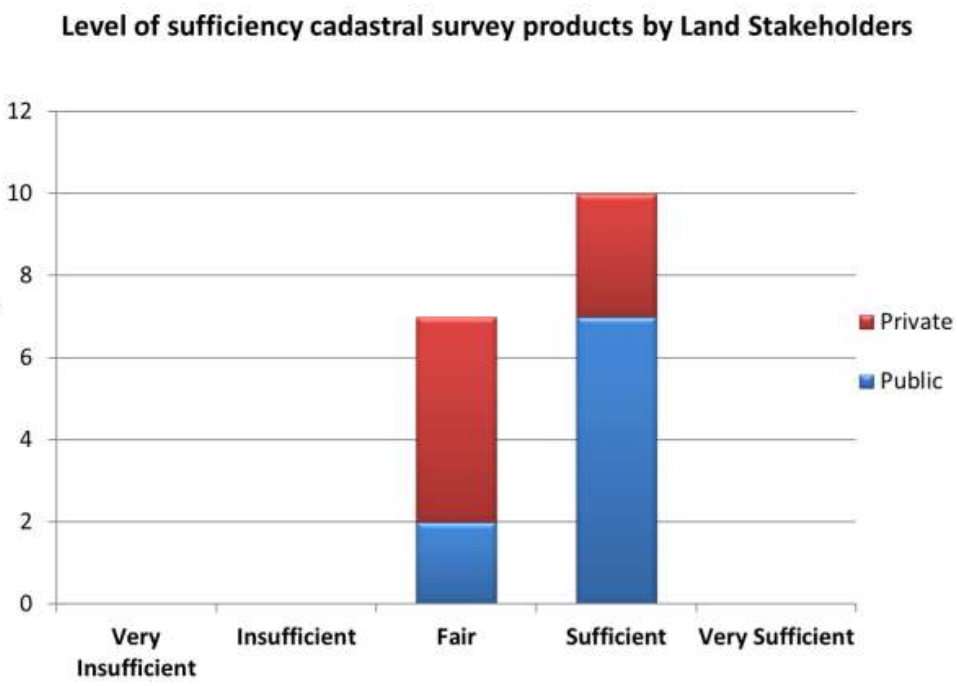

Ratio of problematic boundaries -- Rural
12
10
8
6
4
2
0
less than 10%
25%
50%
75%
more than 90%

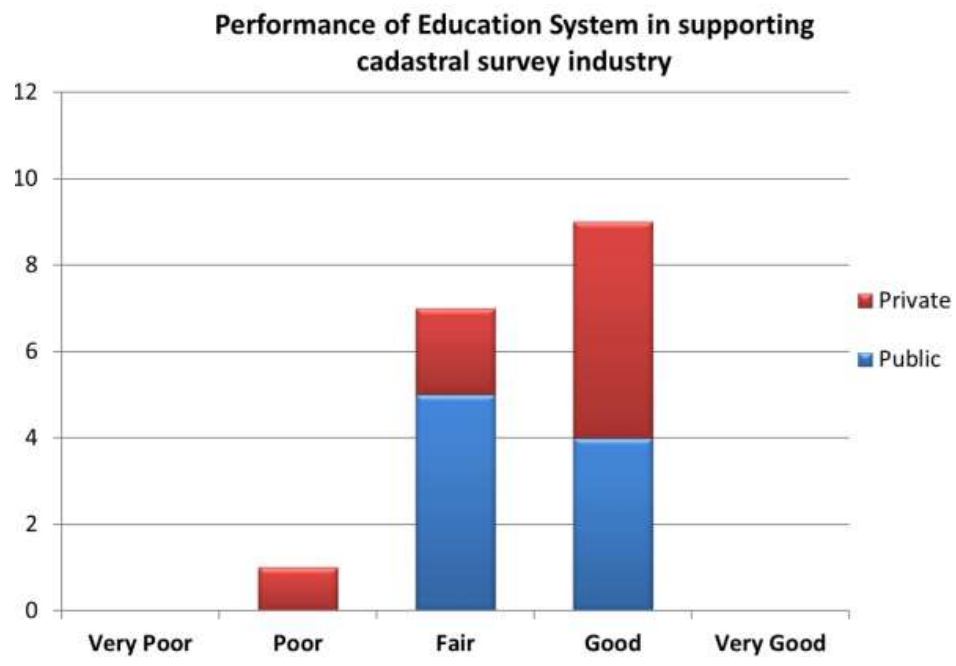

Institutional rules and guidelines on cadastral surveying
12
10
8
6
4
2
0
Very Inappropriate
Inappropriate
Fair
Appropriate
Very Appropriate

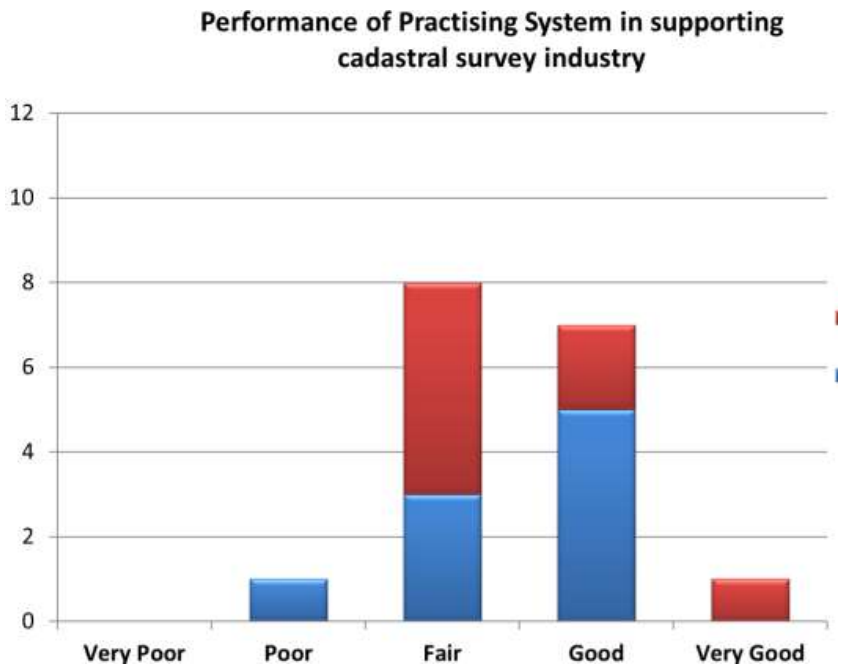

Institutional aspects need to be improved
12
10
8
6
4
2
0
Survey Standards
Quality Assurance
Scope of Services
Information Management
Private
Public

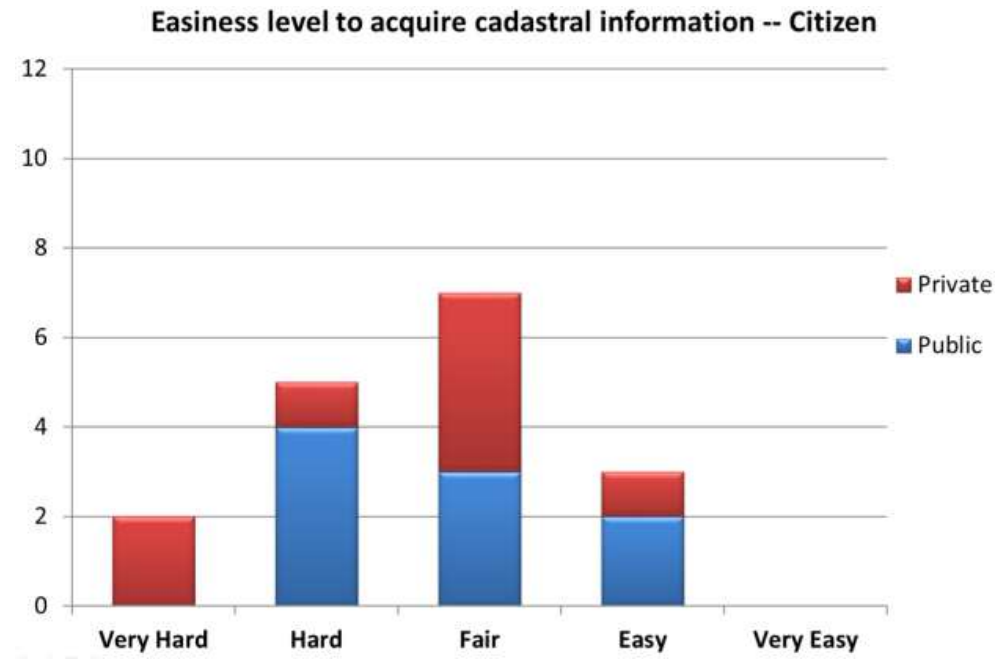
Service

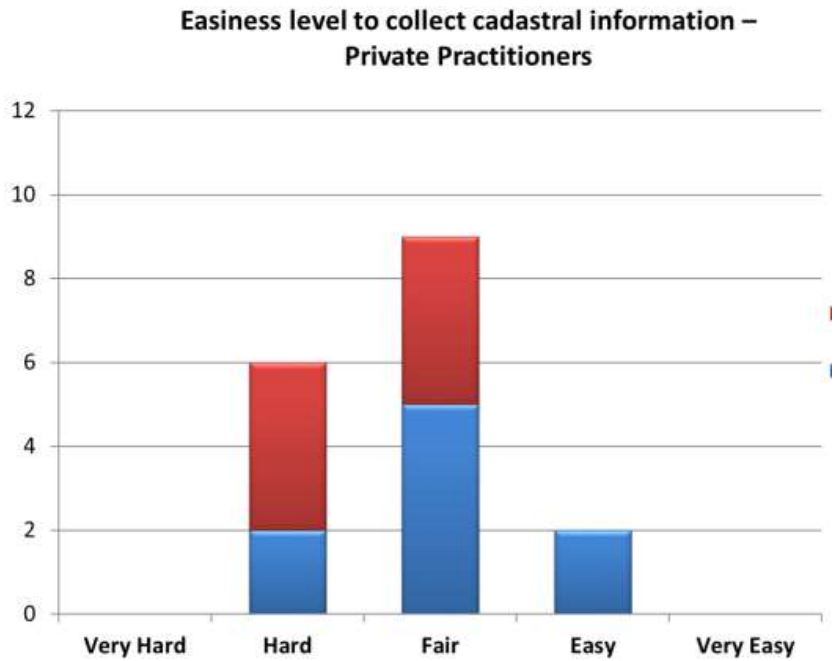

Level of adoption cadastral survey products by Land Stakeholders
12
10
8
6
4
2
0
Very Rarely
Rarely
Occasionally
Frequent
Very Frequent
Private
Public


Level of sufficiency cadastral survey products by Land Stakeholders
12
10
8
6
4
2
0
Very Insufficient
Insufficient
Fair
Sufficient
Very Sufficient
Private
Public


Performance of Education System in supporting cadastral survey industry
12
10
8
6
4
2
0
Very Poor
Poor
Fair
Good
Very Good
Private
Public


Performance of Practising System in supporting cadastral survey industry
12
10
8
6
4
2
0
Very Poor
Poor
Fair
Good
Very Good


Easiness level to acquire cadastral information -- Citizen
12
10
8
6
4
2
0
Very Hard
Hard
Fair
Easy
Very Easy
Private
Public


Easiness level to collect cadastral information – Private Practitioners
12
10
8
6
4
2
0
Very Hard
Hard
Fair
Easy
Very Easy

Conclusions

- A study on the ***Performance*** and ***Purposes*** of the current cadastral survey system
- Participatory scheme -- Gain understandings on the development of individual cadastral survey system from its practitioners
- Flexible assessment framework – Assessment elements can be customized to meet the design of each individual systems

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FIG COMMISSION 7
Cadastre & Land Management

THE HONG KONG INSTITUTE OF SURVEYORS
香港測量師學會

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香港理工大學

THANK YOU

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