Information and guidelines on using tracking data for mobility planning

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Content

- **Research questions and overview of work;**

- **Current planning practices;**

- **Assessment of potential;**

- **New planning and policy approaches;**

- **Applications of tracking information;**

- **Issues to consider for obtaining and analyzing tracking data;**

- **Conclusions.**

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General research questions

- **What are the planning and decision making processes conducted in cycling and walking policy?**

- **How, the data generated by tracking, can be used to support and positively change these processes?**

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Sources of investigation

- **Literature review;**

- **Surveys to planners/decision makers and user representatives;**

- **Interviews (too developers);**

- **Workshop "Walking and cycling data for planning and policy" (~20 experts).**

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Where does (tracking) data potentially influence the planning and policy process?

- (Tracking) data are relevant at all stages of the planning & policy process
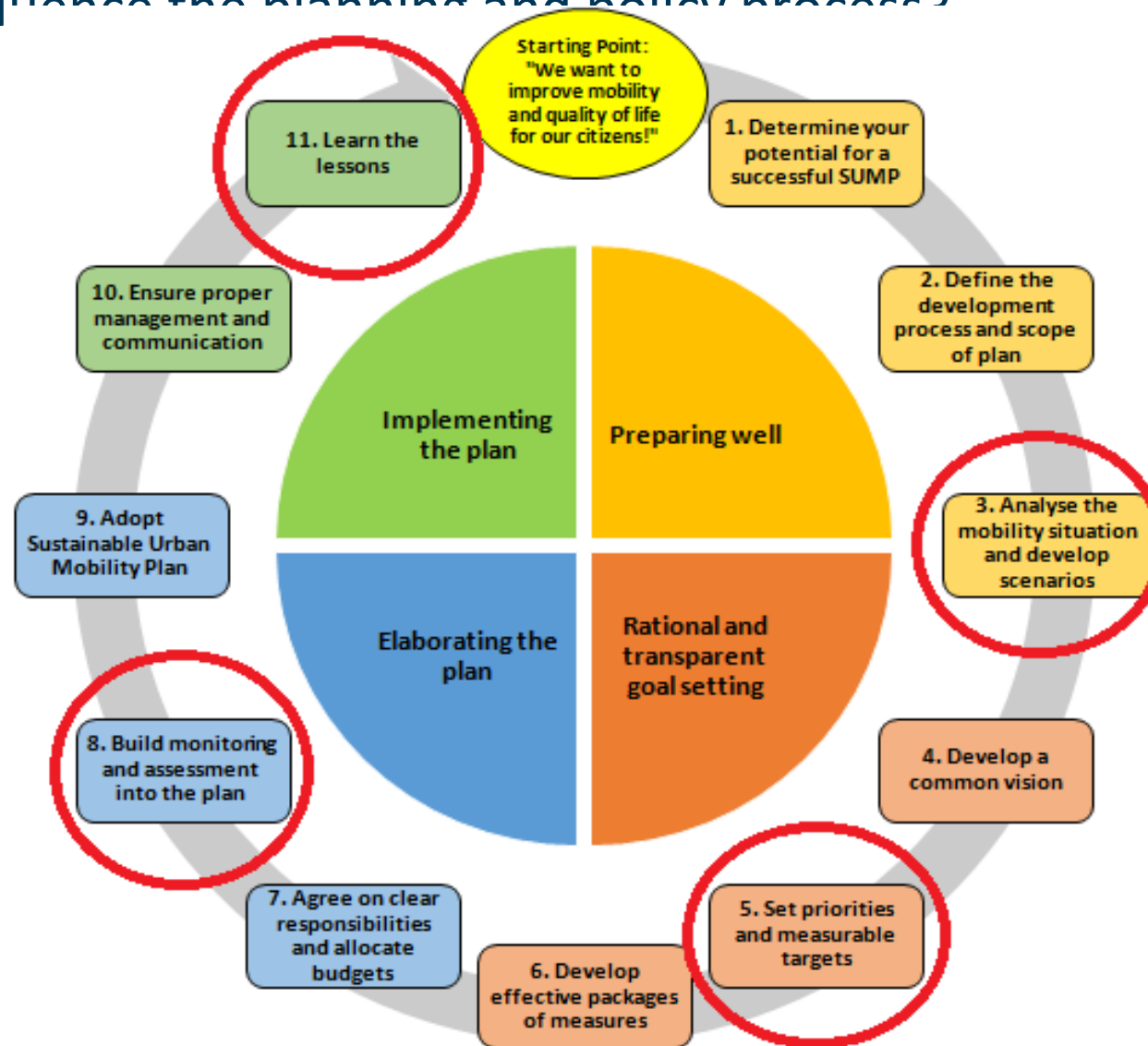
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Data plays an important role during all the planning phases of a SUMP

- **Preparation of measures**: data is used to analyse the current mobility situation and develop alternative scenarios that might result from different policies and measures.

- **Setting of the objectives:** the level of accuracy of the previously collected data should be assessed, in order to develop SMART (measurable and quantifiable) targets.

- **Elaboration of the plan:** monitoring and evaluation process should be defined, and the impact of a particular measure will be assessed on the basis of the type of data selected and its *ex-ante/ex-post* quantification.

- **Monitoring processes** which, again, leads to new action: more general impact assessment will be implemented in order to understand success and failure: this process will consider the actual achievement of the target previously identified.
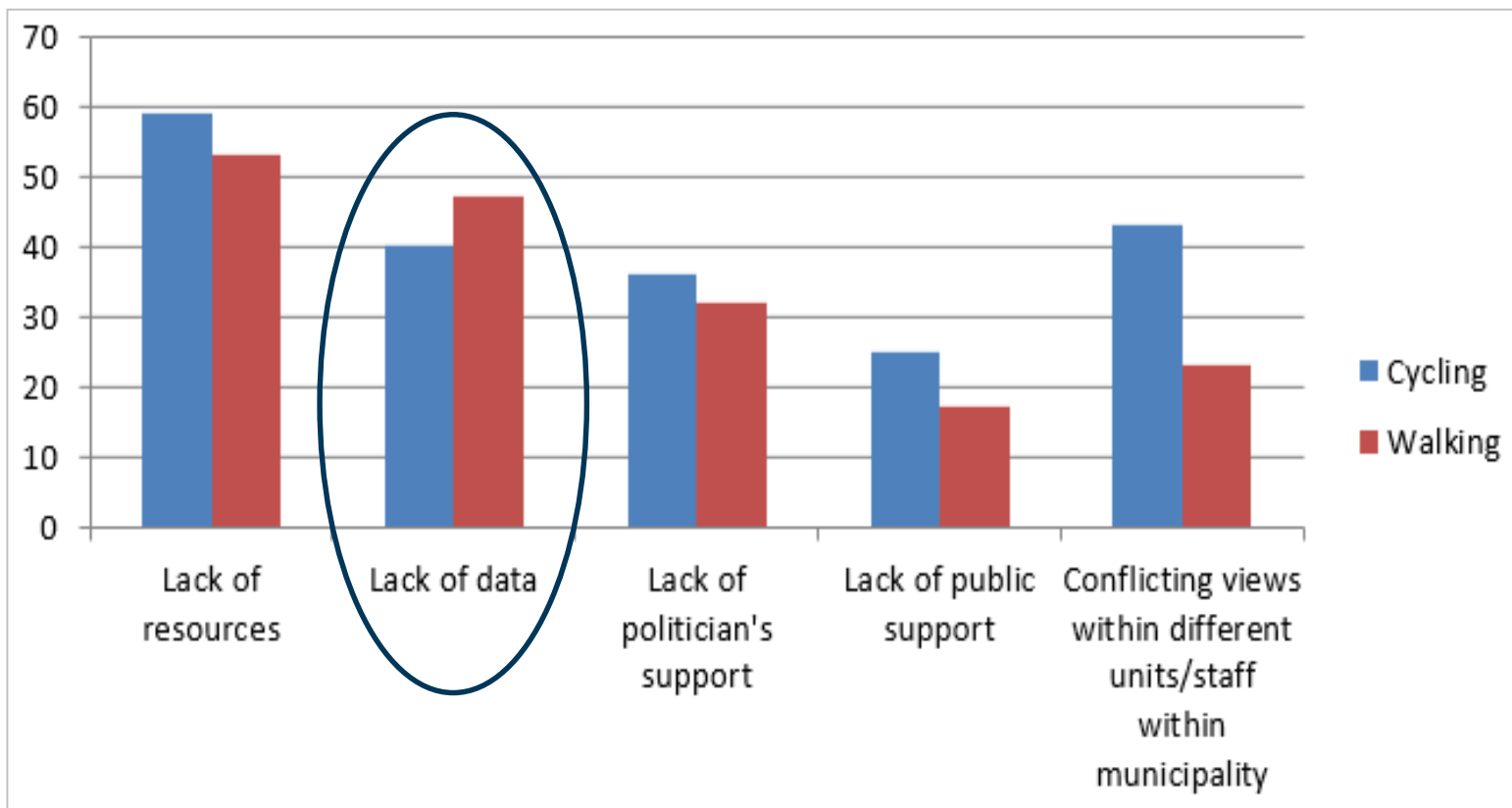
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Open questions

- The supportive role of data for decision making process: how data (and specifically tracking) should be collected and used to effectively support the planning (cycle) process?

- The relevance of the contexts in terms of local needs (City typology): how the local situations really affects and changes the planning approach?

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Current planning practices

Survey results

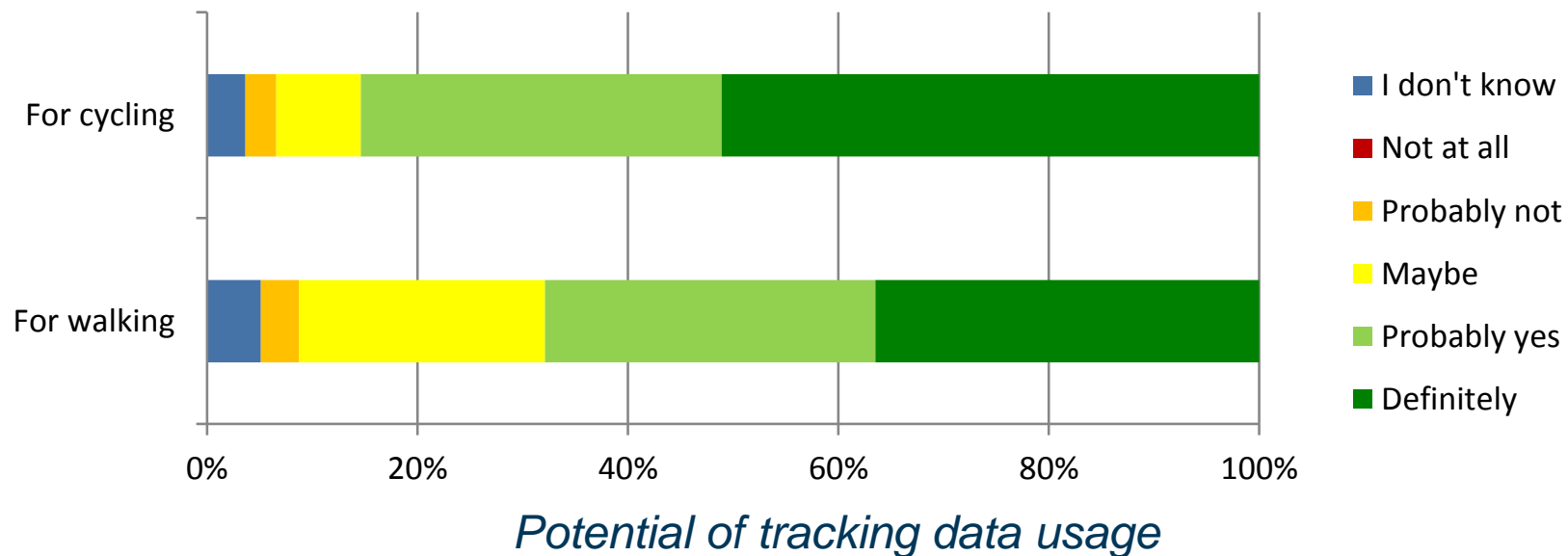*Relevancy of barriers for achieving the existing priorities*

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Assessment of potential

Survey results

The TRACE surveys' results have shown that both public authorities and users have high awareness of the potential of tracking data, although this data is rarely used in everyday planning process, especially for walking.


Potential of tracking data usage

Legend:
- ■ I don't know
- ■ Not at all
- ■ Probably not
- ■ Maybe
- ■ Probably yes
- ■ Definitely

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Identification of gaps in data relevant for transport planning and potential of tracking data to fulfil those gaps

Input data for transport planning	Traditional methods		Tracking based methods			
	Surveying	Counting	GPS	GPS + GIS	GPS + SMS/app	GPS + GIS + SMS/app
User data - socioeconomic						
Gender, age, occupation, address, *etc.*	yes	no	no	no	yes	yes
Travel data - individual						
Origin	yes	no	yes	yes	yes	yes
Destination	yes	no	yes	yes	yes	yes
Journey start time	yes	no	yes	yes	yes	yes
Journey end time	yes	no	yes	yes	yes	yes
Exact routes	no	no	yes	yes	yes	yes
Transport mode(s)	yes	yes	no	yes	yes	yes
Travel purpose	yes	no	no	yes	yes	yes
Transfer nodes	yes	no	no	yes	yes	yes
Transfer time	yes	no	no	yes	yes	yes
Network data						
Road data (type and condition)	yes	no	no	yes	no	yes
Nodes data (bottlenecks, delays, *etc.*)	no	yes	no	no	no	yes
Links data (link speeds, bottlenecks, delays)	no	yes	no	yes	no	yes
Absolute volumes	no	yes	no	no	no	no
Public transport data (stops, lines, routes, *etc.*)	yes	yes	no	yes	no	yes
Parking data (location, quantity)	yes	yes	no	no	no	yes
Zones data	yes	no	no	no	no	yes

New planning and policy approaches

Survey results
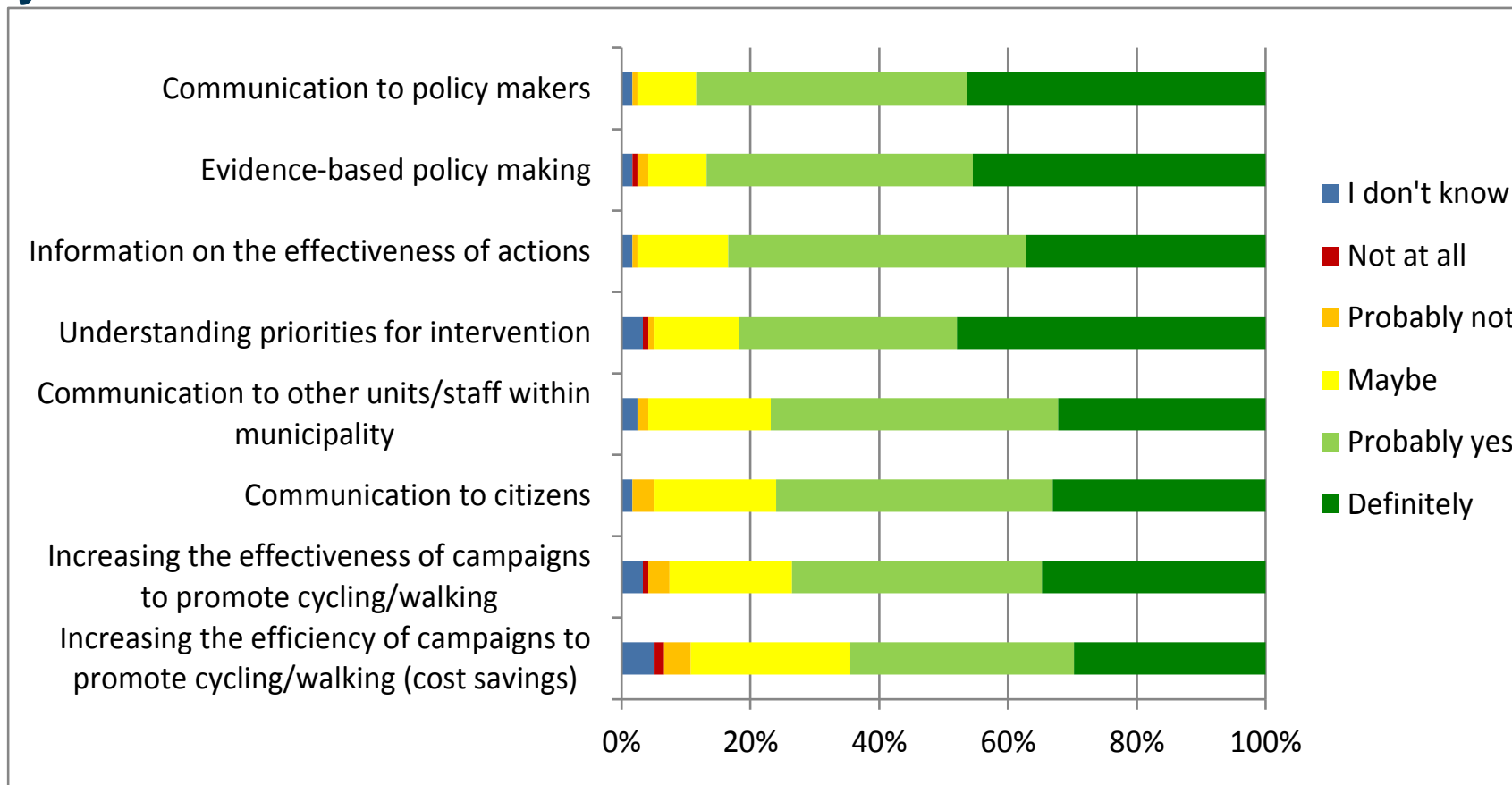
Applications of tracking information

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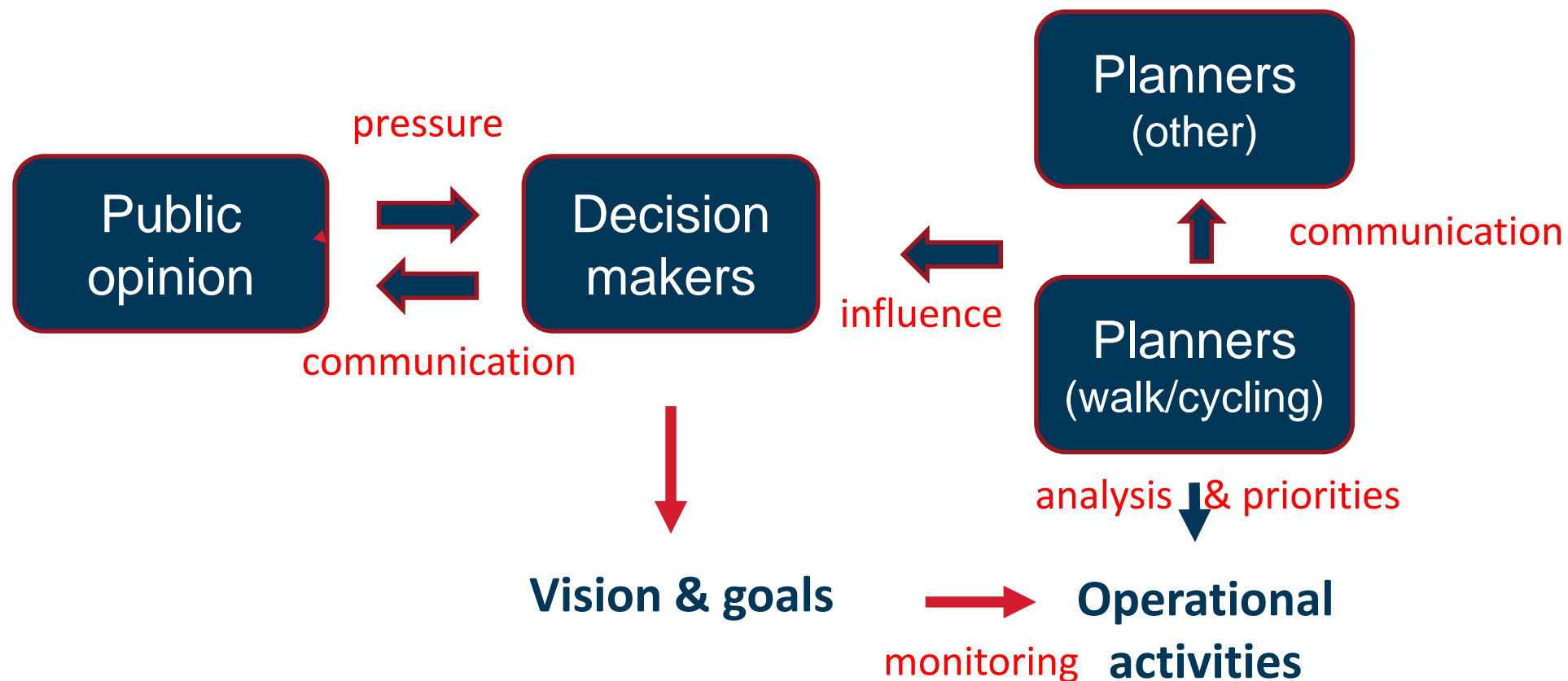# New planning and policy approaches

Functions of tracking data

- A simple tool for communication;

- Demand and infrastructure performance analysis;

- Monitoring of measures;

- Linking the interests of users and stakeholders.

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New policy & planning approaches

Roles of tracking data in planning & policy process (in red)

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New planning and policy approaches

## Survey results - Limitations and challenges?

- The first challenge is obviously **to obtain tracking data**;

- A common barrier to obtaining data is **the privacy issue**;

- One of the major challenges in terms of tracking data use is **how to go from raw data to meaningful knowledge**;

- Another limitation is **the quality of the data**, in particular its accuracy and representativeness.

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New planning and policy approaches
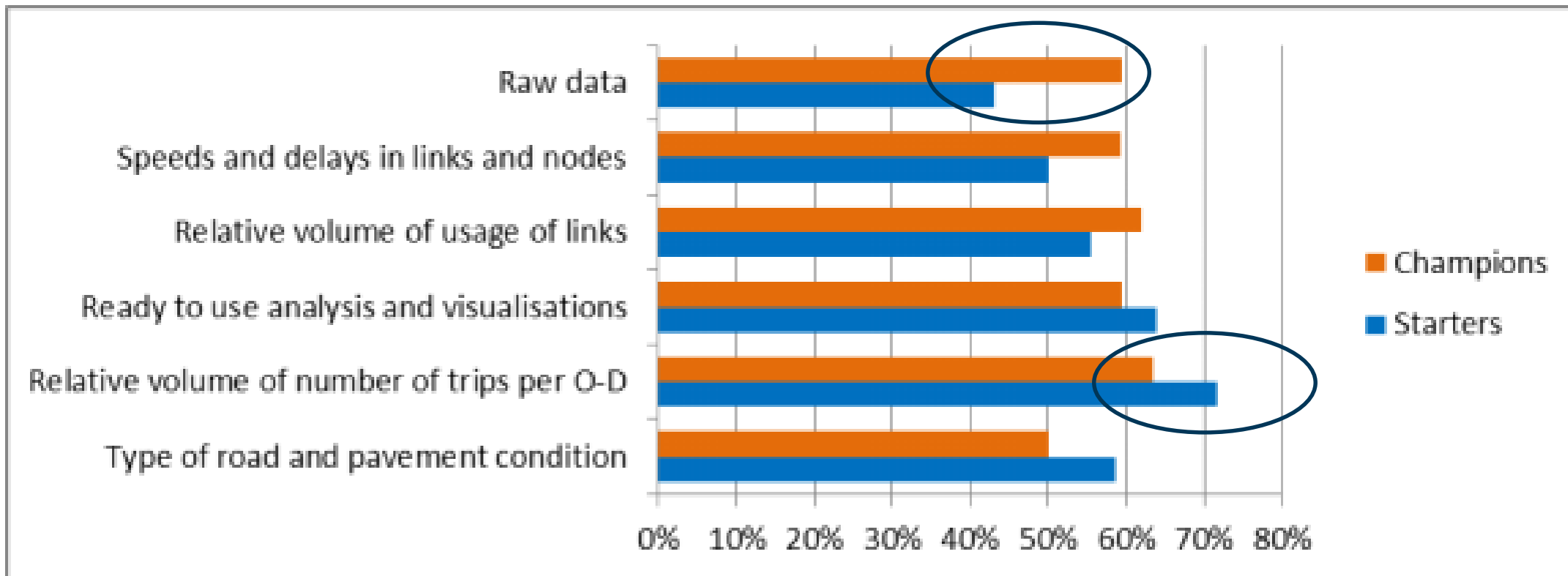
Survey results

Tracking data use preferences depending on type of site

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Applications of tracking information

Survey results - Indicators and visualizations

The indicators can be grouped in broad types:

- **Origins and destinations** – sites of origin and destination of trips and their relative importance by volumes. At a micro scale, identification of preferred parking spot locations;

- **Flows and volumes** – volumes of flows per link, node, in area or between areas;

- **Level of service** – information on speeds, travel times, delays which allows to identify problems and priorities for intervention;

- **Surface quality** – information on the quality of the surface of paths realized by users, particularly cyclists;

- **Comparisons with other indicators** – the overlapping of user activity data collected by tracking with other available data, like accidents, pollution or topography.

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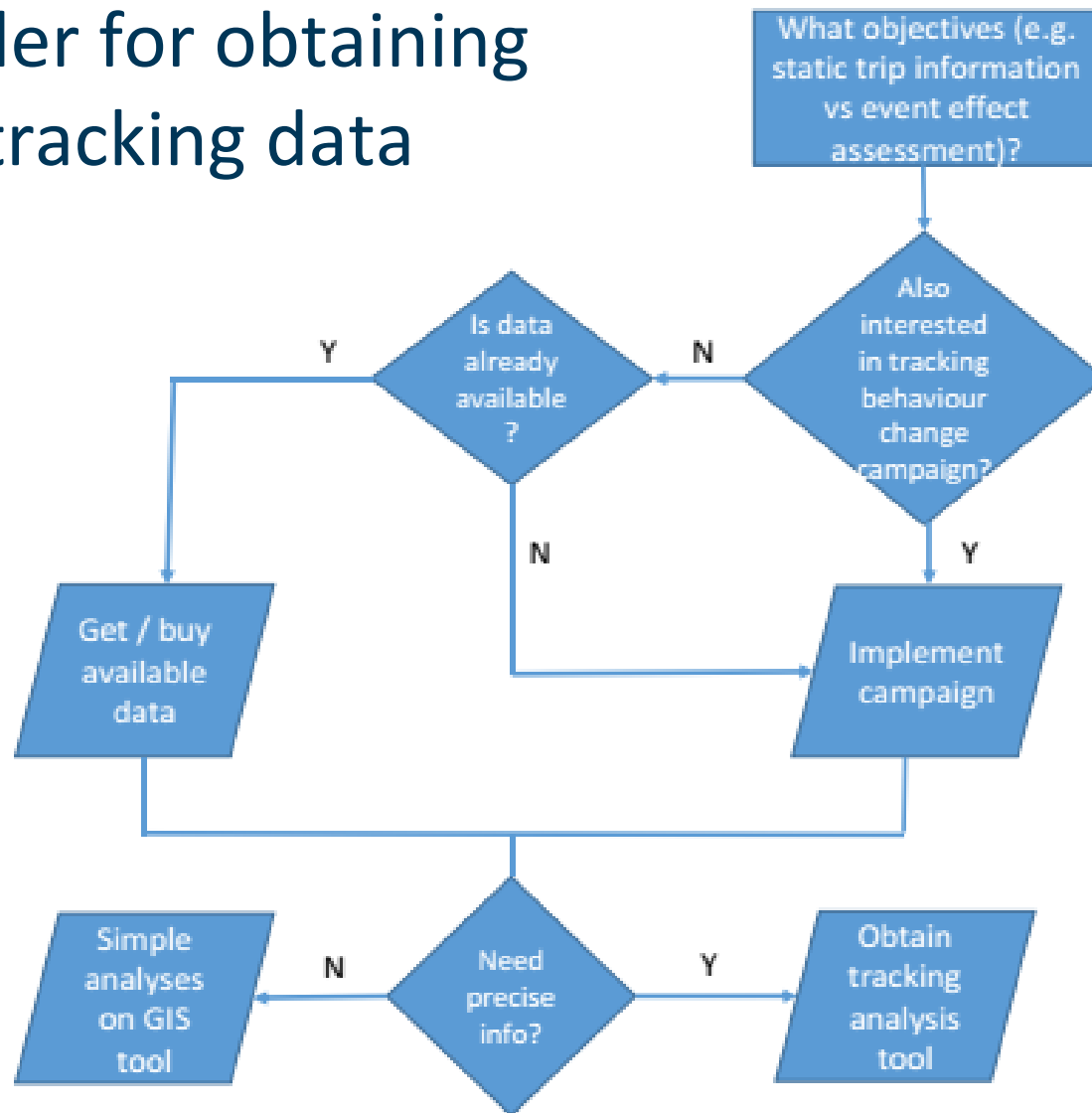
Applications of tracking information

Quality of data

- **Accuracy and frequency of the location data.**

- **Representativeness of sample:**

  - Leisure vs utilitarian cyclists;

  - Experienced cyclists vs starters;

  - Info excluded users.

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Issues to consider for obtaining and analyzing tracking data

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Conclusions

- Planners want tracking for planning of cycling and walking;

- Not only for analysis and planning, but also for communication;

- They can understand and define questions that could be solved through tracking information;

- Tracking information provides information that was not possible to obtain before;

- Data sources and tools to analyze the data (are) will be available

- Challenges:
  - reliability of data and derived information / interoperability and standards
  - national privacy regulations
  - user friendliness and capabilities of analysis tools

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Thank you for your attention!

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