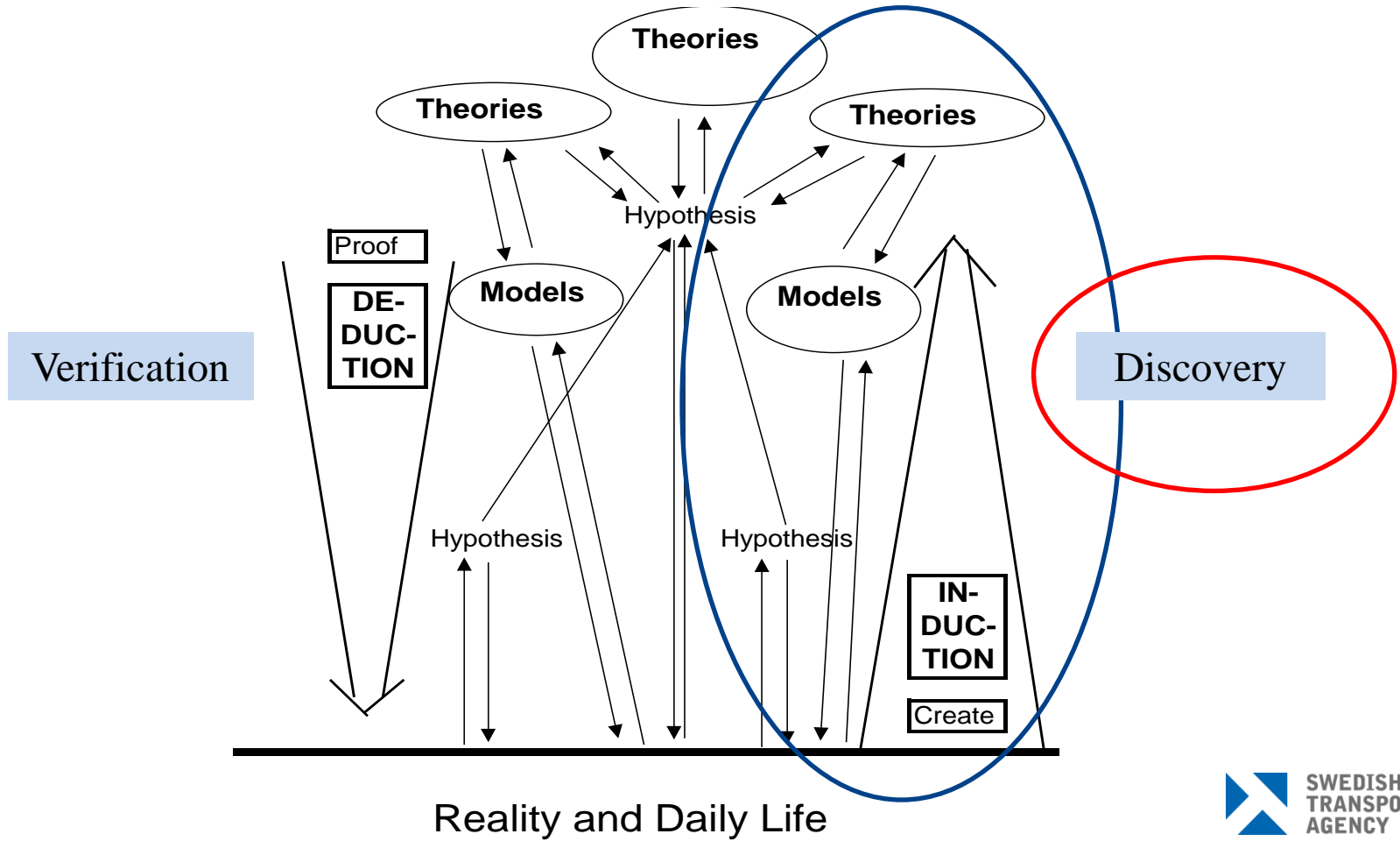# To put the drafting volunteers informal writing into a science perspective

Grounded Theory – a qualitative inductive methodology for developing theories

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Theories

Theories

Theories

Hypothesis

Proof

DE-DUC-TION

Models

Models

Verification

Discovery

Hypothesis

Hypothesis

IN-DUC-TION

Create

Reality and Daily Life

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What is grounded theory (GT)?

A method of generating theory based on patterns found in data (everything is data)

Glaser och Strauss (1967) believes that a produced theory always must be grounded in data:

"the basic theme in our book is the discovery of theory from data systematically obtained from social reserach"

An example from another research area

From: https://statswork.com/blog/what-is-grounded-theory-in-accounting-research/
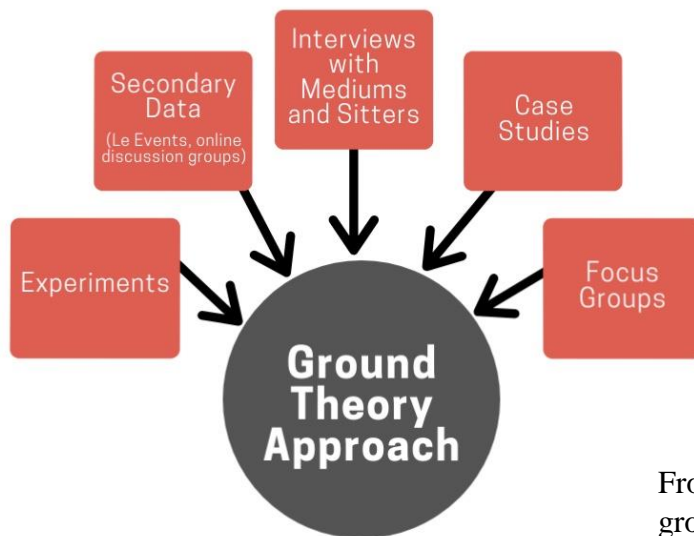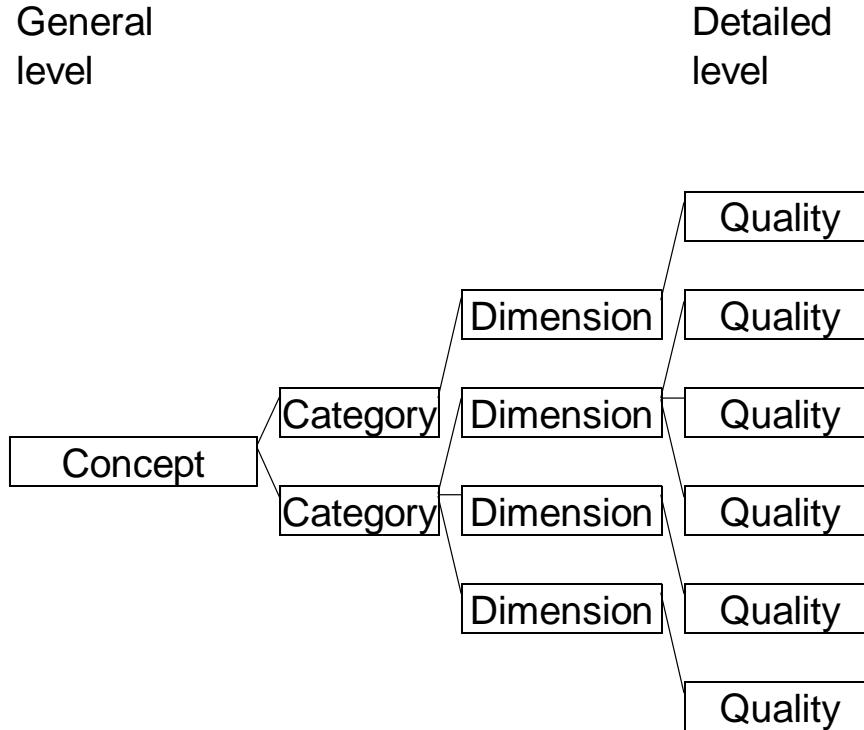
The GT specifies how to map the data collected. Eneroth (1994) writes that:

"*This method means that when you are faced with a lot of clarified data, you systematically try to group and regroup them, until you have made as complete a mapping of the phenomenon as possible based on these given data*"

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It is important to have:

an empty head but an open mind…..!

The principle: from detail to general…

General
level

Detailed
level

```
                                                  ┌──────────┐
                                                  │ Quality  │
                                                  └──────────┘
                                   ┌───────────┐  ┌──────────┐
                                   │ Dimension │  │ Quality  │
                                   └───────────┘  └──────────┘
                    ┌──────────┐   ┌───────────┐  ┌──────────┐
                    │ Category │   │ Dimension │  │ Quality  │
                    └──────────┘   └───────────┘  └──────────┘
   ┌──────────┐
   │ Concept  │
   └──────────┘
                    ┌──────────┐   ┌───────────┐  ┌──────────┐
                    │ Category │   │ Dimension │  │ Quality  │
                    └──────────┘   └───────────┘  └──────────┘
                                   ┌───────────┐  ┌──────────┐
                                   │ Dimension │  │ Quality  │
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                                                  ┌──────────┐
                                                  │ Quality  │
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```

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The Swedish data ("the road forward to self driving vehicles" and "liability when automated driving")

Using the scoping draft text which is grounded in data by expert interviews

Example from the scoping draft_230404 and the chapter II, articles 4, 5 and 6

An example of grounded theory result…..

Concept	Category	Dimension	Quality

Title of the new legal instrument   **Chapters**   **Articles**   **Provisions**

Legal instrument Safe autom. veh.

Safe behavior of automated vehicles in traffic

General Ethical Principles
- No endaring humans or causing damage
- Prevent acc./minimize harm
- Special attention safety vuln. road users, chlidren, eld.

Dynamic control of an automated vehicle
- DDT only either by a driver/human or by ADS
- Driver exercises the dynamic control when they perform all or part of the dynamic driving task or monitors the driving environment with a view to safety critical intervention by exercising the vehicle controls.
- The ADS exercises dynamic control only if it performs all DDT.

Minimum safety performance of an automated vehicle

When exercising dynamic control, the ADS shall, without requiring any human to monitor the road or the behavior of the vehicle:
a) manoeuvre the vehicle in compliance with the applicable traffic rules,
b) cope with all kinds of traffic situations,
c) adapt the driving to suit prevailing conditions and to drive with adequate margins of safety,
d) react to unforeseen situations in a way that minimizes risks to road safety,
e) recognise the situations when the human intervention is needed, and request intervention through process that allows the human the time to respond appropriately,

The Swedish data ("the road forward to self driving vehicles" and "liability when automated driving")

Data from other countries, WP.29, WP.1, GE.3 etc……

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From induction to deduction

How to use the theory/model that the voluntary writing group has produced?

The summary of all domestic proposals may not work to 100% globally

A verification phase?
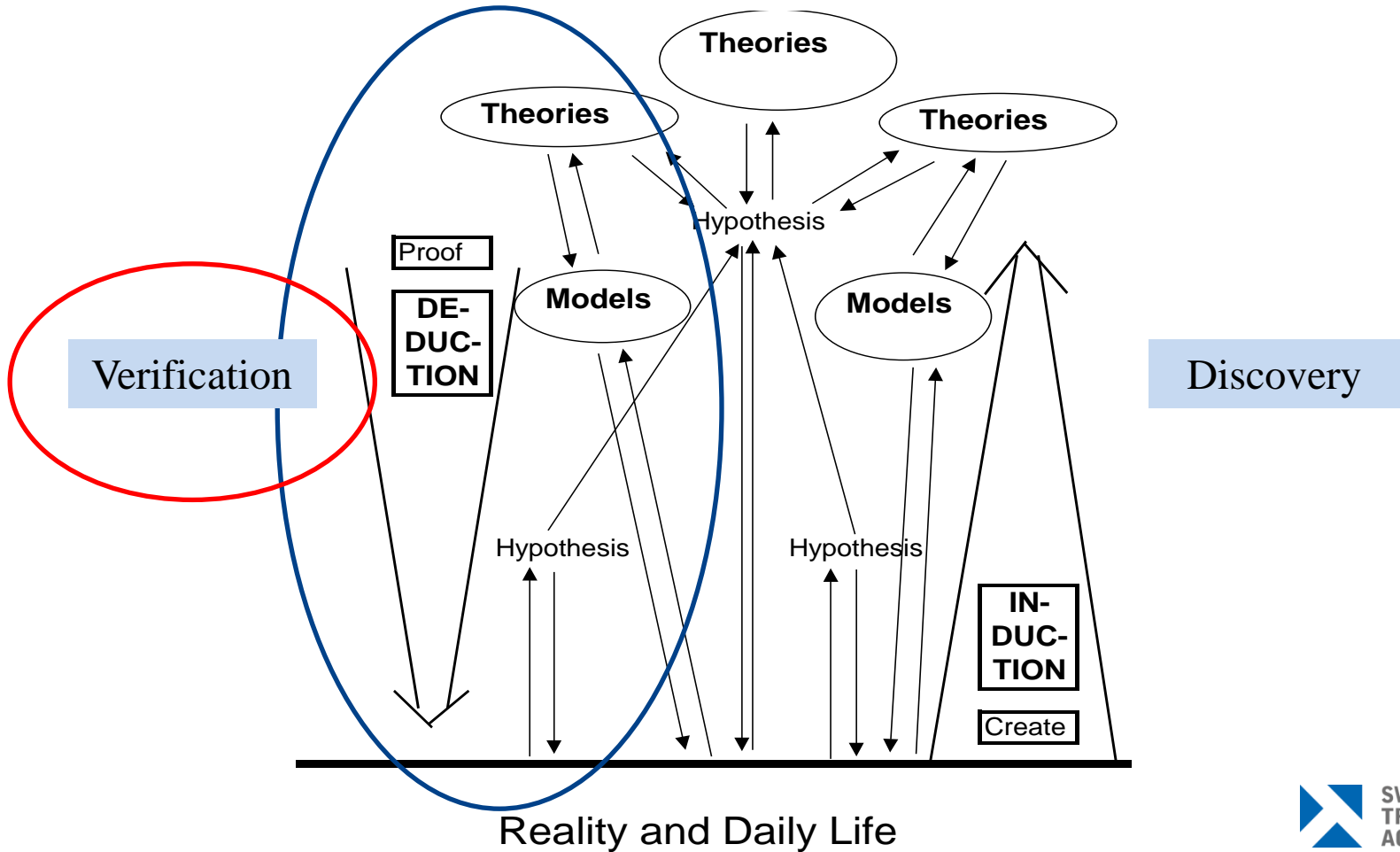
Continue with a verification phase?

Terms of reference of the Group of Experts on drafting a new legal instrument on the use of automated vehicles in traffic

1. This Group of Experts is established to prepare a draft new legal instrument on the use of automated vehicles in **domestic** and **international** traffic.

ECE/TRANS/WP.1/2020/2

- Input to scoping papers?
- Input to GAP-analysis?
- Focus/content of a new legal instrument?
- Type of instrument?
- Converting the aggregated levels of chapters/articles to principles?
- Etc.?

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Thank you!

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