

## Questionnaire "Requirement profile of a registration-free LEV" — 01.12.2017

Name of the company:

Name, first name of contact person/respondent:

Position/responsibility in the company:

Phone contact:

E-mail contact:

### **Definition Light-Electric-Vehicle (LEV):**

An LEV is an electric vehicle with pedals and an auxiliary motor that can be powered by a battery, fuel cell or hybrid drive. This also includes a cargo bike. The auxiliary motor support up to a speed of 25 km/h is not subject to licensing. By contrast, an LEV with a maximum design speed of over 25 km/h is classified as a conventional moped and requires a corresponding type approval.

### Overview of the main topics of the questionnaire:

Part I: Your previous experience with a Light-Electric-Vehicle (LEV)

Part II: Future chances through LEV usage

Part III: Requirements for the configuration of your ideal LEV

## Part I: Your previous experience with a Light-Electric-Vehicle (LEV)

The following questions are dedicated to your experiences and the current situation in your company organisation.

Please tick ☐, if applicable. Multiple answers are possible in some cases.

### 1. Have you been using LEVs in your company? ☐ yes, for .....years ☐ no

(the following questions apply only if the answer is ,yes', otherwise continue to question 2)

a) How many vehicles do you have available?	number:	
b) Which models/brands do you use?	model:	brand:
c) Where do you currently use LEVs?	<input type="checkbox"/> urban areas <input type="checkbox"/> rural areas <input type="checkbox"/> city centre / pedestrian area <input type="checkbox"/> connecting roads <input type="checkbox"/> in-house logistics <input type="checkbox"/> ...	
d) How many stops does an LEV make per day?	Ø	min.:
e) How many kilometres does an LEV travel per day?	Ø	min.:
f) How many tours does an LEV undertake per day?	Ø	min.:
g) Total LEV loading volume (m <sup>3</sup> ) per day	Ø	min.:
h) Total LEV tonnage (kg) per day	Ø	min.:
i) Do you use micro hubs?	<input type="checkbox"/> yes	<input type="checkbox"/> no
j) Which problems do you have using LEVs?	<input type="checkbox"/> technical <input type="checkbox"/> operational <input type="checkbox"/> organisational <input type="checkbox"/> ... <input type="checkbox"/> none <input type="checkbox"/> ...	
k) Could you briefly describe the problems occurring in question j)?		

**2. You do not own an LEV, yet?**

(Please state reasons hereinafter)

a) current logistic infrastructure	<input type="checkbox"/> non-critical subject	critical:  <input type="checkbox"/> storage / micro hubs <input type="checkbox"/> transloading <input type="checkbox"/> information supply <input type="checkbox"/> shipping units <input type="checkbox"/> quality of transport <input type="checkbox"/> maintenance <input type="checkbox"/> ...
b) economic evaluation	<input type="checkbox"/> non-critical subject	critical:  <input type="checkbox"/> high acquisition costs <input type="checkbox"/> high operating costs <input type="checkbox"/> low performance <input type="checkbox"/> missing suppliers <input type="checkbox"/> ...
c) technical implementation	<input type="checkbox"/> non-critical subject	critical:  <input type="checkbox"/> readiness for use <input type="checkbox"/> availability <input type="checkbox"/> range <input type="checkbox"/> service provider / maintenance <input type="checkbox"/> issues main leg-/subsequent leg <input type="checkbox"/> communication devices <input type="checkbox"/> ...
d) future strategic planning	<input type="checkbox"/> LEV still not important	<input type="checkbox"/> LEV increasingly important

## Part II: Future chances through LEV usage

### 3. Are you planning to acquire or purchase LEVs in the next 1–3 years?

☐ Yes

☐ No

(the following reasons speak for the investment)

a) Which type of delivery vehicle do you use?	<input type="checkbox"/> Sprinter class <input type="checkbox"/> ... <input type="checkbox"/> Caddy class <input type="checkbox"/> ...	
b) How many stops does a Sprinter currently make per day?	∅	min.:
c) How many stops does a Caddy currently make per day?	∅	min.:
d) How important is ergonomics of the LEV to you?	<input type="checkbox"/> very important	<input type="checkbox"/> rather unimportant
e) How important are the possibilities of mounting the LEV to you?	<input type="checkbox"/> right-hand side mounting is sufficient	<input type="checkbox"/> mandatory on both sides
f) How important is weather protection?	<input type="checkbox"/> non-critical, because of appropriate clothing	<input type="checkbox"/> maximum protection <input type="checkbox"/> suitable for winter <input type="checkbox"/> rainproof <input type="checkbox"/> sunshine <input type="checkbox"/> ...
g) How much would you be willing to pay for an LEV?	<input type="checkbox"/> less than € 5,000 <input type="checkbox"/> € 5,000 – € 7,500 <input type="checkbox"/> € 7,500 – € 10,000 <input type="checkbox"/> € 10,000 – € 12,500 <input type="checkbox"/> € 12,500 – € 15,000 <input type="checkbox"/> more than €15,000	
h) Which form of financing do you prefer for LEVs?	<input type="checkbox"/> purchasing <input type="checkbox"/> renting (e.g. leasing/ financing)	
i) How do you estimate the annual operating costs (maintenance, insurance) per LEV?	<input type="checkbox"/> up to € 1,000 <input type="checkbox"/> € 1,000 – € 3,000 <input type="checkbox"/> more than € 3,000	
j) Would you book additional services in the form of service and maintenance contracts?	<input type="checkbox"/> yes	<input type="checkbox"/> no

k) What useful life do you calculate with (years)?	
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### Part III: Requirements for the configuration of your ideal LEV

We now assume that you are offered an operationally safe LEV with basic equipment, e.g. load carrier removal "rear with swing door". Your experience or expectations regarding the suitability for everyday use and reasons of economy may mean that further equipment is very important for you. Please state your assessment on necessary additional equipment. Please only tick off equipment for which you would also pay a surcharge.

4. What loading space do you need? (in m <sup>3</sup> )	
5. Which net load do you need? (in kg)	
6. additional equipment "body"	<input type="checkbox"/> active temperature control <input type="checkbox"/> side opening (on the right) <input type="checkbox"/> passive temperature control (insulated box) <input type="checkbox"/> side opening (on the left) <input type="checkbox"/> partial instead of complete cooling <input type="checkbox"/> front opening <input type="checkbox"/> temperature monitoring <input type="checkbox"/> roller shutters <input type="checkbox"/> especially theft-proof <input type="checkbox"/> sliding doors <input type="checkbox"/> slots for sorting <input type="checkbox"/> Euro-pallet compatible <input type="checkbox"/> various bodies <input type="checkbox"/> logical sorting <sup>1</sup> <input type="checkbox"/> interchangeable body <input type="checkbox"/> extendible compartments <input type="checkbox"/> matching existing box systems <input type="checkbox"/> foliation / labelling <input type="checkbox"/> interior lighting <input type="checkbox"/> platform version <input type="checkbox"/> <input type="checkbox"/> equipped with a tarpaulin <input type="checkbox"/> <input type="checkbox"/> damping / suspension <input type="checkbox"/> <input type="checkbox"/> ...
7. additional equipment "functions"	<input type="checkbox"/> weight-optimised vehicle <input type="checkbox"/> fast battery swap <input type="checkbox"/> „turning on the spot“ <sup>2</sup> <input type="checkbox"/> long battery life <input type="checkbox"/> low-wear drive <input type="checkbox"/> short battery charging time <input type="checkbox"/> range sufficient for a day tour <input type="checkbox"/> ... <input type="checkbox"/> battery swap system for exchange at micro hub <input type="checkbox"/> ... <input type="checkbox"/> <input type="checkbox"/> ...

<sup>1</sup> logical sorting: separation of shipments, outward and return transport, etc.

<sup>2</sup> „turning on the spot“: simple and fast turning, e.g. in driveways and backyards

8. additional equipment "safety"	<input type="checkbox"/> ABS braking system <input type="checkbox"/> spare wheel <input type="checkbox"/> tyre pressure monitoring <input type="checkbox"/> brake wear indicator	<input type="checkbox"/> damping / suspension <input type="checkbox"/> shock measurement <input type="checkbox"/> overload notification <input type="checkbox"/> ... <input type="checkbox"/> ...
9. additional equipment "communication"	<input type="checkbox"/> hands-free system <input type="checkbox"/> dynamic bicycle routing <input type="checkbox"/> GPS-Live-Tracking <input type="checkbox"/> ...	<input type="checkbox"/> vehicle data transmission <input type="checkbox"/> smartphone interface <input type="checkbox"/> ...
10. additional equipment "comfort"	<input type="checkbox"/> additional storage <input type="checkbox"/> personal locker <input type="checkbox"/> extra compartment for quick access for certain packages <input type="checkbox"/> supplementary net <input type="checkbox"/> clothing compartment <input type="checkbox"/> bottle holder <input type="checkbox"/> additional lighting <input type="checkbox"/> starting aid <input type="checkbox"/> reverse gear <input type="checkbox"/> bracket for hand scanner	<input type="checkbox"/> adjustability of saddle <input type="checkbox"/> adjustability of handlebar <input type="checkbox"/> rain protection, top <input type="checkbox"/> rain protection, one side <input type="checkbox"/> rain protection, both sides <input type="checkbox"/> rain protection, front <input type="checkbox"/> rain protection, bottom <input type="checkbox"/> wind protection, one side <input type="checkbox"/> wind protection, both sides <input type="checkbox"/> wind protection, front <input type="checkbox"/> heated saddle / handlebar <input type="checkbox"/> ...
11. additional equipment "services"	<input type="checkbox"/> USB port <input type="checkbox"/> charging possibility for hand scanner <input type="checkbox"/> ... <input type="checkbox"/> ... <input type="checkbox"/> ...	<input type="checkbox"/> maintenance, time-dependent <input type="checkbox"/> maintenance, usage-dependent <input type="checkbox"/> immediate breakdown assistance <input type="checkbox"/> winter tyres, spikes