DESIGN AND IMPLEMENTATION OF LOGISTICS PLATFORMS
DESIGN AND IMPLEMENTATION OF LOGISTICS PLATFORMS

GUIDE FOR SOUTHERN MEDITERRANEAN COUNTRIES WITHIN THE FRAMEWORK OF LOGISMED INITIATIVE

April 2017
# Table of Contents

List of Tables and Figures ........................................................................................................... 006
Abbreviations ............................................................................................................................ 008

EXECUTIVE SUMMARY .......................................................................................................... 010

1. **State of the art in logistics platforms** .................................................................................. 014
   1.1. Concept of logistics platform ............................................................................................ 015
   1.2. Types of logistics platforms ............................................................................................ 016
   1.3. Nature of users and operators in logistics platforms ........................................................ 018
   1.4. Contribution of platforms to logistics development ....................................................... 020
   1.5. International context and experiences ........................................................................... 022
   1.6. Challenges to implement platform projects in developing countries ............................. 023

2. **Roadmap to the implementation of logistics platforms** .................................................... 026
   2.1. Implementation steps ....................................................................................................... 027
   2.2. Stakeholders throughout the project cycle ..................................................................... 029

3. **Start-up phase** .................................................................................................................... 036
   3.1. Promotion and logistics strategy .................................................................................... 037
   3.2. Definition and preselection of projects .......................................................................... 037
   3.3. Reservation of land ........................................................................................................ 038
   3.4. Feasibility studies ........................................................................................................... 038
   3.5. Choice of business model and creation of the LPD ......................................................... 042

4. **Implementation phase** ........................................................................................................ 052
   4.1. Launch of the LPD ........................................................................................................... 053
   4.2. Financial structure of the project ................................................................................... 055
   4.3. Acquisition of land and other land-related aspects ........................................................ 057
   4.4. Technical studies and land development plan ............................................................... 059
   4.5. Works .............................................................................................................................. 061
   4.6. Commercialization ........................................................................................................ 062
   4.7. Incentives and other support measures .......................................................................... 066

5. **Operational phase** ............................................................................................................... 070
   5.1. Roles and functions of the LPD during the operational phase ....................................... 071
   5.2. Type of services and delivery models ........................................................................... 071
   5.3. Business model during the operational phase ................................................................ 073
   5.4. Relationship with operators, assessment and corrections ............................................. 075
   5.5. Environmental and social recommendations ................................................................ 075

6. **Technical features of logistics platforms** ......................................................................... 076
   6.1. Logical framework for the functional definition of the LPs .............................................. 077
   6.2. Functional definition process .......................................................................................... 078
   6.3. Definition of location ..................................................................................................... 079
   6.4. Platform size .................................................................................................................. 082
   6.5. Layout of the logistics platform ....................................................................................... 083
   6.6. Access and road system .................................................................................................. 087
   6.7. Design of functional areas ............................................................................................. 093
   6.8. Service infrastructure in a logistics platform ................................................................ 106
   6.9. Environmental sustainability in the design of the LPs .................................................. 112

7. **Services in the LPs** .............................................................................................................. 114
   7.1. Types of service in a logistics platform ......................................................................... 115
   7.2. Logistics services .......................................................................................................... 115
   7.3. Basic services ................................................................................................................. 118
   7.4. General services in the LPs ............................................................................................ 118
   7.5. Cluster or value-added services ..................................................................................... 120
   7.6. Other ICT services to improve logistics functionality .................................................. 121
List of Tables and Figures

Table 01: Basic features for the definition of a logistics platform .................................................. 016
Table 02: Classification of logistics platforms ................................................................................. 017
Table 03: Users and operators in the LPs ....................................................................................... 019
Table 04: Average reduction in logistics costs due to relocation to a LP (%) ................................... 021
Figure 05: Logical framework for the tasks in the start-up phase .................................................... 027
Figure 06: Logical framework for the tasks in the implementation phase ........................................ 028
Figure 07: Logical framework for the tasks in the operational phase .............................................. 029
Figure 08: Map of the stakeholders in a logistics platform project .................................................. 030
Table 09: Elements for the preliminary definition of a logistics platform project .......................... 037
Table 10: Market study .................................................................................................................... 039
Table 11: Technical feasibility study and pre-project summary ....................................................... 040
Table 12: Brief environmental and social impact assessment ......................................................... 041
Table 13: Economic and financial study ......................................................................................... 042
Table 14: Institutional framework study ......................................................................................... 042
Table 15: Description of the logistics property function and promotional function ....................... 043
Table 16: Profitability and usual management mode of the areas in a logistics platform .................. 044
Table 17: 100% public model ........................................................................................................... 046
Table 18: The joint venture model .................................................................................................... 046
Table 19: PPP model ....................................................................................................................... 047
Table 20: Model with differentiated management for various areas ............................................... 048
Table 21: 100% private management model .................................................................................... 048
Table 22: Examples of business models used for logistics areas in ports ........................................ 049
Table 23: Examples of business models: non-maritime intermodal platforms ............................... 049
Figure 24: Process to create the LPD ............................................................................................... 051
Figure 25: Organizational structure of the logistics developer ....................................................... 055
Figure 26: Pay-back period according to the commercialization model ....................................... 056
Table 27: Indicative list of the contents of the technical development plan for a logistics platform .... 060
Table 28: Approvals required for the land development plan of a platform ..................................... 061
Table 29: Comparison of the sales model versus the temporary transfer model ............................ 062
Table 30: Examples of multi-client and single-client warehouses .................................................. 064
Table 31: Risks associated with commercialization and mitigation measures ............................... 066
Figure 32: Example of a special economic zone: Bizerte business park ....................................... 067
Table 33: Examples of services in platforms .................................................................................... 071
Table 34: Delivery model for general services ................................................................................ 072
Figure 35: Illustration of the business model during the operational phase .................................... 074
Figure 36: Framework for the definition of the functional characteristics of an LP ....................... 077
Figure 37: Examples of functional definition phases ...................................................................... 079
Table 38: Levels of decision-making concerning the location of a logistics platform .................... 079
Table 39: Criteria for the macro-location of a logistics platform .................................................... 080
Figure 40: Relationship between the macro-location of an LP and its strategic functional orientation 080
Table 41: Criteria for the micro-location of a logistics platform ...................................................... 081
Table 42: Technical characteristics of the German logistics platforms ......................................... 083
Table 43: General criteria for the layout of an LP ......................................................................... 084
Table 44: Basic structural elements of an LP .................................................................................. 085
Table 45: Design limitations associated with the platform space .................................................. 085
Figure 46: Example of main entrance ............................................................................................. 086
Figure 47: Example of service area ................................................................................................. 086
Figure 48: Example of intermodal area ........................................................................................... 087
Figure 49: Example of entrances for different functional areas .................................................... 087
Figure 50: Example of an access gate: Free Trade Zone, Cartagena, Colombia ............................ 088
Figure 51: Example of rail access to a logistics platform .......................................................... 089
Figure 52: Examples of road cross-section ............................................................................. 091
Figure 53: Example of roundabout in the arterial road network of an LP ................................. 091
Figure 54: Example of parking areas for light and heavy goods vehicles ............................... 092
Figure 55: Potential layout options of a superblock .............................................................. 094
Table 56: Superblock layout types ......................................................................................... 095
Table 57: Integrated warehouse types .................................................................................. 096
Table 58: Types of manoeuvring areas in integrated warehouses ........................................... 098
Figure 59: Example of turning area below ground level ....................................................... 098
Figure 60: Example of mezzanine offices in an integrated warehouse ................................. 099
Figure 61: Examples of loading docks in logistics warehouses .............................................. 099
Table 62: Units and composition of the service area ................................................................ 100
Table 63: Indicative criteria for pre-sizing the service area in an LP .................................... 100
Table 64: Indicative size of the different units in the service area ......................................... 101
Table 65: Examples of service centres .................................................................................. 102
Figure 66: Integrated parking in a logistics platform ............................................................ 102
Table 67: Pre-sizing of the intermodal container terminal .................................................. 104
Figure 68: Example of an intermodal container terminal ..................................................... 105
Figure 69: Example of specialized and dedicated terminals .................................................. 105
Table 70: Recommendations for the lighting criteria in a platform ........................................ 110
Figure 71: Waste collection point ....................................................................................... 111
Table 72: Sustainability trends in the design of logistics platforms ....................................... 112
Figure 73: Examples of solar panels ..................................................................................... 112
Table 74: Target logistics services according to logistics platform type ............................... 117
Table 75: Delivery of basic services in a logistics platform .................................................. 118
Table 76: General services in the LPs .................................................................................. 119
Table 77: Cluster or value-added services in logistics platforms .......................................... 120
Table 78: ICT services to improve logistics functionality ...................................................... 122
**Abbreviations**

ACTE: Spanish Association of Transport and Logistics Centres  
AMDL: Moroccan Agency for Logistics Development  
CETMO: Centre for Transportation Studies for the Western Mediterranean  
EIB: European Investment Bank  
EU: European Union  
FEMIP: Euro-Mediterranean Investment and Partnership Facility  
GVZ: Güterverkehrszenren (Freight Villages in Germany)  
LP: Logistics platform  
LPD: Logistics platform developer  
MPC: Mediterranean partner countries  
NFA: Net Floor Area  
PPP: Public–private partnership  
SNTL: National Transport and Logistics Company (Morocco)  
TA: Technical assistance  
UL: Urban logistics
EXECUTIVE SUMMARY

1. THE PURPOSE OF THIS GUIDE

The European Investment Bank (EIB) has commissioned this Guide on the design and implementation of logistics platforms for the countries participating in the Logismed regional initiative within the context of the capacity-building actions for Mediterranean Neighbourhood Countries with the aim of promoting a network of logistics platforms in the region.

The main reasons for publishing this Guide are:
- Because, among stakeholders in many countries, there is not always a common understanding of what a logistics platform is and the services it can provide.
- Because several difficulties have been identified to progress from schemes and projects to operational and financially sustainable logistics platforms.
- Because it may save the time and energy of stakeholders willing to engage in logistics platform projects, given that the existing literature in the field is disperse and not always applicable to the realities of emerging countries.

2. STATE OF THE ART OF LOGISTICS PLATFORMS

The best-known and most widely accepted definition of logistics platform is provided by the association Europlatforms:

“A defined area within which all activities relating to transport, logistics and the distribution of goods, both for national and international transit, are carried out by various operators.”

The key aspects common to logistics platforms are:
- A defined area or complex designed to accommodate logistics, freight transport and service companies.
- Centralized management: one entity is responsible for managing the entire complex.
- Specially designed areas and infrastructure for transport and logistics.
- Restrictions on activities that are not directly compatible with logistics.
- Direct link to linear or nodal infrastructure for the transportation of goods.
- Availability of specialized services.
- Open to the market, i.e. not restricted to a particular company or group of companies.

The central challenge of logistics areas in market economies is that they require large extensions of land in well-connected locations. Too often, logistics cannot compete for these spaces against other land uses that are more profitable for landowners or private investors. This means that without some kind of public sector involvement, there is a risk of systematic eviction of logistics activities from these strategic locations as well as the uncontrolled scattering of logistics warehouses in sub-optimal locations.

Moreover, in most developing and emerging countries, logistics platforms usually provide a dual function:
- The main function is to provide specialized areas and infrastructure for logistics and goods transport.
- But a complementary function is also envisaged so that logistics platforms become a breeding ground for developing and updating the logistics sector.

3. ROADMAP TO IMPLEMENTATION

Logistics platforms are more complex than traditional industrial parks because they require more
investment in infrastructure and include services that are not always available in industrial parks. While private sector involvement is usually sufficient for the development of industrial parks, public sector involvement is often required for the development of logistics platforms.

Typically, a wide range of stakeholders will be involved in any logistics platform project, each with its own priorities and agenda. In this context, the Guide identifies the typical stakeholders involved in logistics platform projects and suggests some clues on how to deal with their expectations.

The key to a successful logistics platform project is creating a sense of belonging among stakeholders and managing the capabilities and expectations of the different stakeholders. Finally, as logistics platforms usually are large-scale, complex projects, they require effective and powerful units to implement them.

A roadmap for implementing logistics platforms organized in three phases: start-up, implementation and operational.

4. START-UP PHASE

Most often, logistics platform projects are set in the frame of a wider national or regional logistics strategy that includes various actions and projects. The progress from policy to successfully implemented logistics platforms requires sound selection criteria to prevent infeasible and highly risky projects from being prioritized. Thus, this section addresses the main challenges likely to be found in the initial stages of project definition and securing suitable land is a key one. It also provides some recommendations for feasibility studies. This Guide does not endorse any particular business model; rather, in this section, the pros and cons of most common business models found in logistics platforms are discussed and practical recommendations about the entity in charge of developing the project are provided.

5. IMPLEMENTATION PHASE

This section starts by detailing the process required for the operationalization of the entity in charge of the project and addresses options for the financial structuring. Land acquisition usually has many implications in terms of cost, timing and even the business model of platforms and this subject is therefore treated in detail. Later, the Guide provides some guidelines for the technical, engineering and land development studies that will typically be needed and gives recommendations on the procurement, execution and monitoring of works so as to reduce the risks of cost and time overruns. This Guide recommends that marketing and commercialization of the project should start from early stages and provides some recommendations for marketing strategies for drafting sales/lease/rental contracts. Finally, this section provides an overview of incentives and other support measures and alerts on their potential risks and side effects.

6. OPERATIONAL PHASE

This phase starts once works are completed and the first companies locate in the platform. At this stage, the role and functions of the entity in charge of the platform mutate from being a developer into being a manager and sometimes a service provider. Thus, the type of services to be provided and the way they are delivered have an impact on the business model of the entity in charge of the platform. This section finalizes with some practical recommendations to ensure a fruitful relationship between the platform manager and the companies located in it, as well as some environmental and social recommendations to ensure win-win relations with other stakeholders in the area where the platform is located.
All the steps in each stage are discussed in the Guide, the different options are analysed and, finally, recommendations are drawn from successful (and failed) experiences.

7. TECHNICAL GUIDE

This section defines the desirable technical and functional characteristics for logistics platforms such as location and sizing, functional design and layout, and types of warehouses for different logistics activities.

It also addresses the conception and layout of service and intermodal areas (e.g. integrated service centre, vehicle service centre, container freight station and customs and foreign trade services). Lastly, particular attention is given to the public utilities network to be found in logistics platforms.

8. SERVICES IN LOGISTICS PLATFORMS

A logistics platform should not only be envisaged as a physical place where logistics activities are performed, but as a conglomerate of services. Services are one of the most distinctive features of logistics platforms, as the Europlatforms definition suggests. This section addresses the services most commonly found in platforms organized in four main categories: basic services, general services, functional services, and cluster or value-added services.

In this section, targeted logistics services are defined depending on the type of logistics platform. Furthermore, some recommendations are made on the delivery model for services (direct, indirect or outsourcing).
CHAP. 1

STATE OF THE ART IN LOGISTICS PLATFORMS
1.1. Concept of logistics platform

1.1.1. Definition and core elements

The best-known and most widely accepted definition of logistics platform is provided by the association Europlatforms:

“A defined area within which all activities relating to transport, logistics and the distribution of goods, both for national and international transit, are carried out by various operators.”

The key aspects common to logistics platforms are:

- A defined area or complex designed to accommodate logistics, freight transport and service companies.
- Centralized management: one entity is responsible for managing the entire complex.
- Specially designed areas and infrastructure for transport and logistics.
- Restrictions on activities that are not directly compatible with logistics.
- Direct link to linear or nodal infrastructure for the transportation of goods.
- Availability of specialized services.
- Open to the market, i.e. not restricted to a particular company or group of companies.

1.1.2. Main challenge

As is clear from the above definition, the essential function of a logistics platform is to provide a specialized area with space and infrastructure for logistics and goods transport operators. The central challenge of logistics areas in market economies is that they require large extensions of land in well-connected locations. Too often, logistics cannot compete for these spaces against other land uses that are more profitable for landowners or private investors. This means that without some kind of public sector involvement, there is a risk of systematic eviction of logistics activities from these strategic locations as well as the uncontrolled scattering of logistics warehouses in sub-optimal locations.

The objective of most logistics platform schemes is therefore to structure projects that allow logistics operators to set up in these strategic locations at affordable prices.

Logistics does not allow for speculation; logistics activity requires thorough cost optimization and involves constant pressure. Logistics activities cannot afford to pay speculative prices for space (land, warehouses, etc.).

1.1.3. Specialized areas

The basic function of a logistics platform is to provide a specialized area with spaces and infrastructure for logistics and goods transport operators.

These spaces generally fall into three categories:

- Logistic spaces:
  - Warehouses for sale or rent.
  - Plots for logistics operators, also for sale or rent.
  - Plots for large-scale logistics (areas for bulk cargo, vehicle logistics, etc.).

- Service spaces:
  - Services for vehicles and equipment: parking areas, petrol stations, garages, etc.
  - Services for people and companies: service centres, offices, etc.
  - Value-added services: often services for foreign trade (customs).

- Spaces for intermodality:
  - Container terminals.
  - Modal interchange zones, front-line airport and port terminals, rail-road terminals, etc.
1.2. Types of logistics platforms

Logistics platform types vary widely depending on their strategic approach, size, complexity, degree of specialization, level of multimodality, etc.

First, it is important to clarify one point: each company based in a given logistics platform may have a different focus. For example, they may specialize in international business, local distribution or intermodality, or in a specific logistics chain.

Nevertheless, while it is important to respect the freedom of each company, a platform can be said to have a main focus or function based on its location and general design features.

1.2.1. Basic features for the definition of a logistics platform

In order to classify the basic features of the Logismed network in a straightforward and systematic way, they are shown in the table below:

— Table 01: Basic features for the definition of a logistics platform —

<table>
<thead>
<tr>
<th>Defining feature</th>
<th>Characteristics and forms</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Scope of hinterland</td>
<td>· International platform</td>
</tr>
<tr>
<td></td>
<td>· National platform</td>
</tr>
<tr>
<td></td>
<td>· Regional platform</td>
</tr>
<tr>
<td></td>
<td>· Metropolitan or local/urban platform</td>
</tr>
<tr>
<td></td>
<td>· Border platform</td>
</tr>
<tr>
<td>2 Degree of intermodality</td>
<td>· Road platform</td>
</tr>
<tr>
<td>and multimodality</td>
<td>· Platform with direct rail intermodality within the platform itself (0 km)</td>
</tr>
<tr>
<td></td>
<td>· Platform with rail intermodality nearby (maximum distance of 10 km)</td>
</tr>
<tr>
<td></td>
<td>· Platform with sea or air intermodality</td>
</tr>
<tr>
<td></td>
<td>· Multimodal platform</td>
</tr>
<tr>
<td>3 Level of specialization</td>
<td>· Multi-purpose platform</td>
</tr>
<tr>
<td></td>
<td>· Specialized or cluster platform (with sector -or chain- specific logistics activity)</td>
</tr>
</tbody>
</table>

1.2.2. Classification of logistics platforms

A wide range of names and classifications can be found across the world to define logistics platforms based on national planning criteria, functional diversity, political intervention, modal distinction, etc.

This Guide proposes a simplified, operational classification specially adapted to the range of platforms likely to be promoted in the Logismed region. These types are easily identifiable, although many platforms may meet the requirements of more than one category. It is therefore important to keep an open mind and remain flexible with respect to the categories. In particular, some of the distribution platforms may fall under a “mixed” category, such as dry ports and agri-food platforms.

In accordance with these basic defining features, a proposal for the classification of the logistics is presented below:
### Table 02: Classification of logistics platforms

<table>
<thead>
<tr>
<th>Type / Characteristic</th>
<th>1. Scope of hinterland</th>
<th>2. Degree of intermodality and multimodality</th>
<th>3. Level of specialization</th>
</tr>
</thead>
</table>
| Distribution logistics platform | · International  
· National  
· Regional  
· Metropolitan | · Desirable  
· Desirable  
· Not necessary  
· Not necessary | Multi-purpose |
| Port logistics zone | International | · Sea and land  
· Rail, desirable | Multi-purpose |
| Air freight centre | International | · Air and land  
· Rail, not necessary | Multi-purpose |
| Logistics centres with rail intermodality (dry ports)¹ | Generally regional or metropolitan | Rail-road transport necessary, and with connection with the main ports of the hinterland | Multi-purpose |
| Agri-food logistics centres  
· Agribusiness platforms (central markets)²  
· Agribusiness parks | Generally regional or metropolitan | Not necessary | Cluster |
| Border logistics centres | Border | Not necessary | Multi-purpose |
| Cluster logistics centres | Generally national or regional | Not necessary | Cluster |

¹ The name “dry port” is commonly used in logistics argot to refer to railway intermodal logistics platforms located in a port hinterland offering customs services. Nevertheless, strictly speaking (see “Handbook on the Management and Operations of Dry Ports”, UNCTAD 1991), a dry port must be connected to a seaport by land (rail or road), but UNCTAD highly recommends it also have a rail connection. For this reason, in this document and in simplified terms, a “dry port” refers to an intermodal rail centre. As mentioned above, some dry ports are also national distribution platforms.

² Some agribusiness platforms are part of larger logistics distribution complexes.
Examples:

**Distribution logistics platform**

PLAZA – Zaragoza’s national and regional distribution platform (Spain)

**Port-related logistics zone**

Altenwerder logistics area in the Port of Hamburg (Germany)

**Air freight centre**

Alliance air freight centre in Fort Worth (United States)

**Dry port**

CIM Interporto Novara (Italy)

**Agri-food logistics centre**

Central de Corabastos, Bogotá (Colombia)

**Border logistics centre**

San Luis Rio Colorado intermodal border platform (Sonora, Mexico)

Source of images: PLAZA, Google Maps, Alliance, CIM Interporto Novara, the authors.

### 1.3. Nature of users and operators in logistics platforms

The users and operators in logistics platforms can be classified according to the following criteria:

**Field of action**

- Users and operators in logistics areas.
- Users and operators in service areas.
- Users and operators in intermodal areas.
### Level of involvement

- **Direct users**: agents and operators based in and operating from the LPs.
- **Indirect users**: agents and operators that benefit from the services provided by the direct users.

The following table outlines the characteristics of the direct and indirect users of the LPs in accordance with this classification.

<table>
<thead>
<tr>
<th>Direct users</th>
<th>Indirect users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Users in logistics areas</td>
<td></td>
</tr>
<tr>
<td><strong>1PL—First-Party Logistics Providers or Transport Operators</strong></td>
<td></td>
</tr>
<tr>
<td>· Full loads: operators (companies or independent carriers) that carry out door-to-door transport to major shippers, with shipments that fill the space in each vehicle</td>
<td>· Other freight and logistics operators that are associated with or form part of the supply chain of the direct users of the LPs</td>
</tr>
<tr>
<td>· Partial loads: transportation of medium-sized shipments between the terminals of the carrier when a shipper does not have enough goods to fill a truck</td>
<td>· Shippers and cargo owners that require the services of logistics operators in the LPs</td>
</tr>
<tr>
<td>· Parcels: door-to-door transport services involving small shipments, with a commitment to deliver within a specified time frame</td>
<td>· Wholesalers and retailers supplied by the operators in the LPs</td>
</tr>
<tr>
<td><strong>2PL—Second-Party Logistics Providers</strong></td>
<td></td>
</tr>
<tr>
<td>· Logistics operators with high turnaround of goods (cross-docking, break-bulk, parcel services): these carry out logistics operations that include order preparation but exclude inventory control, picking operations and intermediate storage, and consolidate goods from different clients and origins</td>
<td></td>
</tr>
<tr>
<td>· Logistics operators with low turnaround: these carry out logistics operations that include storage, with long-term storage of goods in the warehouse. These goods may belong to one or several clients</td>
<td></td>
</tr>
<tr>
<td><strong>3PL—Third Party Logistics Providers</strong></td>
<td></td>
</tr>
<tr>
<td>· External providers of logistics services to companies that own or generate loads and outsource all or part of the supply chain. 3PLs integrate and personalize storage services, inventory management, order preparation and goods transportation</td>
<td></td>
</tr>
<tr>
<td><strong>4PL—Fourth-Party Logistics Providers</strong></td>
<td></td>
</tr>
<tr>
<td>· These constitute the highest level of logistics outsourcing: a 4PL is responsible for all of the logistics operations of a business, including its strategic development, and for managing the entire supply chain, including clients and suppliers</td>
<td></td>
</tr>
<tr>
<td><strong>Shippers and cargo owners that take care of their own logistics</strong></td>
<td></td>
</tr>
<tr>
<td>· Companies that own cargo (industrial or distributors) and carry out their own logistics activities in stores or warehouses designed for such activities</td>
<td></td>
</tr>
<tr>
<td>Direct users</td>
<td>Indirect users</td>
</tr>
<tr>
<td>--------------</td>
<td>----------------</td>
</tr>
<tr>
<td><strong>Users in service areas</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Companies that provide carrier and vehicle services</strong></td>
<td></td>
</tr>
<tr>
<td>· Service/petrol stations</td>
<td>· Organizations, companies and individuals that require the services of the direct users in the service areas, whether passing users, clients of the companies based in the LP, etc.</td>
</tr>
<tr>
<td>· Vehicle washing services</td>
<td></td>
</tr>
<tr>
<td>· Repair shops</td>
<td></td>
</tr>
<tr>
<td>· Parking</td>
<td></td>
</tr>
<tr>
<td>· Technical vehicle inspection</td>
<td></td>
</tr>
<tr>
<td><strong>Container services companies</strong></td>
<td></td>
</tr>
<tr>
<td>· Container freight station, with comprehensive container services: loading and unloading, storage, consolidation and deconsolidation, repair, etc.</td>
<td></td>
</tr>
<tr>
<td><strong>General services companies</strong></td>
<td></td>
</tr>
<tr>
<td>· Management and administration companies</td>
<td></td>
</tr>
<tr>
<td>· Restaurant and hotel services</td>
<td></td>
</tr>
<tr>
<td>· Associated services</td>
<td></td>
</tr>
<tr>
<td>· Companies responsible for the maintenance and security of the LPs</td>
<td></td>
</tr>
<tr>
<td><strong>Companies and organizations that provide supply chain and international trade services</strong></td>
<td></td>
</tr>
<tr>
<td>· Customs agents, forwarding agents</td>
<td></td>
</tr>
<tr>
<td>· Public customs and customs-related services</td>
<td></td>
</tr>
<tr>
<td><strong>Users in intermodal areas</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Freight transport operators</strong></td>
<td></td>
</tr>
<tr>
<td>· Rail operators that transport by rail</td>
<td>· Other freight and logistics operators that require intermodal services (rail, maritime or air freight) from the intermodal</td>
</tr>
<tr>
<td>· Air freight operators: scheduled airlines, air freight companies</td>
<td></td>
</tr>
<tr>
<td>· Sea and inland waterway operators: shipping companies, inland waterway transport operators</td>
<td></td>
</tr>
<tr>
<td>· Intermodal operators: companies that provide door-to-door services and issue a single transport document</td>
<td></td>
</tr>
<tr>
<td><strong>Operators in intermodal terminals</strong></td>
<td></td>
</tr>
<tr>
<td>· Rail terminal operators that carry out loading and unloading activities and all internal terminal operations</td>
<td>· Shippers and cargo owners that require the intermodal services of the operators in the LPs</td>
</tr>
<tr>
<td>· Maritime terminal operators and stowage companies</td>
<td>· Transport operators involved in the incoming and outgoing flows of the intermodal chain in the LPs</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
</tr>
<tr>
<td>· Logistics and transport operators and air freight agents based in the back line of air or sea intermodality</td>
<td></td>
</tr>
<tr>
<td>· Ground transport companies with services in the terminals</td>
<td></td>
</tr>
</tbody>
</table>

1.4. **Contribution of platforms to logistics development**

Ultimately, logistics platforms can contribute to logistics progress in developing countries in a number of ways, which can be classified as follows:

**I. Contribution to the development of an institutional framework for logistics policies**

- By establishing the institutional nature of logistics at intermediate level, which can then be disseminated and expanded.
- By providing an intermediary forum for the public and private sectors involved in logistics.
- By disseminating experiences of logistics policies from other countries.
· By promoting the logistics development of cities and metropolitan areas.
· By promoting intermodality and multimodality.
· By strengthening logistics outsourcing.
· By developing logistics clusters and supporting the strategic clusters in a country or region.
· By promoting logistics training.

II. Contribution to the development of the logistics and goods transport sector

· A framework for improving productivity in logistics companies (in all sub-sectors) and goods transport companies, since they operate in specialized spaces.
· A framework for improving the organization of the transport sector by ensuring a concentration of shippers and carriers: modernization of the road transport sector.
· An environment conducive to the transformation of transport companies into logistics operators.
· A framework for disseminating new technologies used in the transport and logistics sectors.
· The creation of meeting points for companies, which would lead to the foundations of collaborative projects, pooling of services, etc.
· An environment of efficiency and for the dissemination of best business practices.
· Improvement of security conditions and reduction in informal practices in the sector.

III. Contribution to the development of the private logistics property sector

· Dissemination of international “Class-A” standards in the spaces and services available for logistics and transport.
· Test beds for disseminating new logistics property arrangements on the market.
· Dissemination of management practices (such as “logistics developer”) that can be applied to high-quality or specialized business parks and logistics parks and/or free ports.
· A framework for the specialization of companies that build logistics spaces, and ways to optimize the cost of building these structures.
· Experiences for improving management models for the operation of these specialized parks.

<table>
<thead>
<tr>
<th>Companies/Effects</th>
<th>Location</th>
<th>Functionality</th>
<th>Environment</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage</td>
<td>0.4</td>
<td>9.3</td>
<td>2.4</td>
<td>12.1</td>
</tr>
<tr>
<td>Freight consolidation</td>
<td>0.4</td>
<td>3.8</td>
<td>2.3</td>
<td>6.5</td>
</tr>
<tr>
<td>Split load</td>
<td>1.2</td>
<td>6.3</td>
<td>2.3</td>
<td>9.8</td>
</tr>
</tbody>
</table>

Source: SPIM

Savings made by transport and logistics operators when they relocate to logistics platforms

Relocating to a logistics platform provides business clients with substantial savings, depending on their previous level. The factors leading to these improvements are based on location, functionality and environment:

—Table 04: Average reduction in logistics costs due to relocation to a LP (%)—
IV. Contribution to the development of logistics sustainability

- With respect to territorial development:
  - They encourage logistics concentration and reduce the impact on the territory.
  - They strengthen the optimization of urban goods distribution.
  - Sustainable management of business parks.

- With respect to transport:
  - They reduce emissions by optimizing location.
  - Dissemination of cleaner vehicles.
  - Promotion of intermodality and multimodality.
  - The use of ICTs that make it possible to optimize vehicle capacity.

- With respect to storage:
  - Construction: green building criteria.
  - Operations: reuse of containers, recycling of packaging materials, redesign of packaging, use of less material, energy reduction
  - They promote the dissemination of reverse logistics.

Ultimately, logistics platforms in developing countries can and must become drivers for the dissemination of logistics development:

- They must spearhead macro-logistics.
- They must provide a source for the dissemination of best practices and value-added services.
- This is why the “logistics developer” management model is so important.

1.5. International context and experiences

The governments of most world countries are paying increasing attention to supporting and improving international logistics performance, as well as internal distribution chains. Government policies aimed at increasing logistics competitiveness often involve attracting logistics-intensive companies and making well-equipped spaces in strategic locations available to them, i.e. creating logistics platforms.

Logistics platforms are now a common feature in most developed countries, though the wide variety of names used to describe them often creates confusion: logistics centres, logistics activity zones, freight centres, transport villages, interports, distriparks and many more.

1.5.1. Experience in Europe

In Europe, the model has been developed considerably in Germany (GVZ or transport villages), Italy (Interporti), and the Netherlands (distriparks and other names) and also in France and Spain (under many different names).

Logistics platforms are playing a key role in recently developed Southern European countries, where they are used as tools for reducing the gap in competitiveness with other, more advanced countries. These platforms have played an important role as drivers of logistics development and by supplying the qualified space and services increasingly required by international operators, as well as by national operators eager to achieve the same level as their global competitors. At the same time, the logistics property market has developed, starting with national central hubs and progressively extending to regional hubs.

A common successful approach involves creating the type of organizations referred to in this Guide as “logistics developers”. They are actors capable of implementing logistics platform projects, as well as collaborative actions to provide a meeting point between supply and demand, and the promotion of value-added. All of this calls for sufficient human resources, land and funding, not to mention management skills and flexibility.
1.5.2. Logistics platforms in emerging countries

The situation is paradoxical in many emerging countries because logistics is now on the agenda of economic policies as well as logistics platform schemes. However, progress is often slow when it comes to actually implementing these schemes to deliver operational logistics platforms.

In developing countries, logistics platforms are usually conceived to provide a dual function:

**Main function:** to provide specialized areas and infrastructure for logistics and goods transport. This function, however, can present differences depending on the level of logistics development in the location where the platform is to be created:

- In locations where the private logistics property sector has a positive dynamic, this function must be compatible with the contribution of the private sector, so that there is no unfair competition between public and private sector projects. Thus, public sector projects usually focus on property products that are often disregarded by private sector developers such as premises for small and medium-sized enterprises, intermodal and multimodal linkage, and development of collaborative and value-added initiatives.
- In locations without a private logistics property dynamic, the job of creating spaces for logistics activities takes on particular significance and is usually a supply-led approach aimed at raising a latent demand.

**A complementary function** is also envisaged so that logistics platforms become a breeding ground for developing and updating the logistics sector. In this regard, logistics platforms can contribute to national logistics progress in developing countries in a number of ways:

- By promoting national institutions for logistics development, sometimes by setting up the initial organization.
- By being a catalyst for development and upgrading the logistics and goods transport sector.
- By promoting higher standards of quality, safety and service on the private logistics property market.
- By contributing to the sustainability of logistics in the field of transport, warehouse construction and storage, and through territorial development.

1.6. Challenges to implement platform projects in developing countries

The main difficulties and challenges associated with designing and implementing logistics platforms in developing countries are as follows:

- **Institutions for the promotion of logistics are still underdeveloped.**
  In general, there is a lack of logistics institutions in developing countries, and those that do exist are poorly structured. It is important to note, however, that significant progress has been made in this area in many countries.

  Often, there is no real coordination between the different authorities and stakeholders. For example, port, airport and rail authorities frequently have their own agendas, with little coordination between them or with the transport structure in general.

- **The planning framework for the strategic definition of projects is still weak.**
  Only very recently have some countries started to focus on national or regional logistics platform plans and connect them to other elements in their logistics structure, such as hubs, corridors, infrastructure networks, ports and airports.
However, it is important to note that quite often there is still no clear definition of logistics platforms that differentiates them from conventional industrial areas, in spite of their unique characteristics. Thus, the specific characteristics of logistics platforms require that they are integrated into national and regional plans, primarily as regards their strategic locations in the transport network and in relation to the major production and consumption hubs.

- **Need to develop a true collaborative culture between the public and private sectors involved in logistics.**
  Too often, public and private sectors involved in logistics ignore and are suspicious of each other. They do not have a collaborative culture and there are no consultation frameworks in place to resolve conflicts.

  The field of logistics involves a chain of interventions and processes that require collaborative strategies and, in this regard, logistics platform projects can act as places for meeting and concertation among concerned stakeholders.

- **Sometimes the role of the different private sectors involved is not well defined.**
  With regard to logistics platforms, it is essential to make a distinction between the involvement of logistics and transport operators on one hand, and logistics property investors and developers on the other.

  Sometimes government agencies that promote logistics platforms do not have a full understanding of the dynamics of interests between the two types of actors, which makes it more difficult to define their intervention correctly.

- **There is no in-depth knowledge of the processes required to implement logistics platform projects.**
  Government departments do not have experience with the specific nature of implementing these projects. They often copy the plans for other transport infrastructure without understanding the specific implications of logistics platforms. Thus, the actors involved should strengthen their capacity and knowledge on the processes needed to implement logistics platforms and learn how to address many practical issues.

- **Awareness of the importance of land for the development of platform projects is still not widespread enough.**
  The choice of location and securing land (often avoiding the opportunistic location of other actors) are crucial to the creation of logistics platforms. One of the most important lessons learnt from struggling projects is “without land, there is no project”. To avoid frustrating situations, logistics developers must focus on securing land during the early stages of a project.

- **The institutions involved in developing logistics platform projects sometimes lack the capacity and resources to become true “logistics developers”:**
  Some countries have institutional structures to promote logistics projects, but they often have very limited human and/or financial resources, experience and powers to carry out projects.

The above challenges are common to most developing and emerging countries and Logismed countries are no exception in this regard. **This Guide is designed to be a practical tool with recommendations for dealing with the challenges identified** in order to facilitate progress in the implementation of logistics platforms.
CHAP. 2

ROADMAP TO THE IMPLEMENTATION OF LOGISTICS PLATFORMS
The aim of this Guide is to provide guidelines and practical tools to assist stakeholders in the successful development of logistics platforms (LPs) in line with Logismed standards. The approach used in this Guide is based on public stakeholders taking a leading role in the launch and implementation of the LPs. The reasons for this method are based on experiences in developed and developing countries that have shown that this is the most usual pattern. In addition, the beneficiaries of the Logismed regional initiative are primarily the public authorities in the MPCs and are therefore likely users of this Guide. However, this approach does not imply that private sector leadership is incompatible with the development of LPs, or that the recommendations in this Guide are not useful for private logistics platform developers. On the contrary, this Guide proposes a process to follow, from the start-up phase to the operational phase of an LP, and this can be adapted to projects designed and launched by the private sector.

2.1. Implementation steps

Developing a logistics platform is a long and complex process. Because of the different approaches and characteristics of the stakeholders, three key phases have been defined: start-up, implementation and operations.

2.1.1. Start-up phase

This phase usually begins with an initiative from a ministry or a promoting authority to develop logistics platforms with a view to achieving broader goals (e.g. to modernize the transport sector, upgrade logistics infrastructure, strengthen the competitiveness of ports, boost foreign trade, and organize urban distribution and the circulation of trucks in urban areas).

The initiative may also be promoted by the private sector. In these cases, the political authorities must ensure that the proposed project is consistent with the objectives of the national logistics policy before lending their support and efforts.

During this phase, the main issues involve identifying the objectives and ensuring that all stakeholders agree on them, mobilizing the stakeholders and creating the tools required to implement the platform. The start-up phase ends when the project is defined and considered appropriate by all stakeholders and the structure tasked with implementing it (hereinafter, the “logistics platform development structure” or LPD) is created.

The activities and stakeholders involved in the start-up phase are more political and institutional in nature. The logical framework for the start-up phase is illustrated as follows:

---Figure 05: Logical framework for the tasks in the start-up phase---
2.1.2. Implementation phase

The implementation phase starts the moment the logistics developer (LPD) becomes operational, i.e. when it has the economic and human resources required to carry out the tasks that have been entrusted to it. During this phase, the issues are primarily technical, financial and operational in nature, and the political and institutional authorities play a more supervisory role.

The implementation of a platform involves two different fields of activity: activities similar to real estate development (property) and activities relating to the delivery of the services.

The property component includes all activities aimed at producing a property supply: developed plots, warehouses and premises that can be made available to operators. These activities involve the most effort and financial resources. Nevertheless, the process to define and prepare the services to be offered in the platform should not be neglected, since these represent one of the intrinsic features of an LP.

The logical framework for the implementation phase is illustrated as follows:
2.1.3. Operational phase

This phase starts when the work is completed and the first companies move to the platform. During the operational phase, it is possible to determine whether the activities and services in the platform meet the desired objectives and corrections can be made if necessary. It is therefore important to ensure that the function and standards of the platform do not alter over the years.

The logical framework and main activities during the operational phase are illustrated in the following diagram:

2.2. Stakeholders throughout the project cycle

A wide range of stakeholders will be called upon to help advance a logistics platform project, and each will have its own priorities and agenda. The following figure illustrates the different stakeholder types, their areas of intervention, their expectations and how all these aspects evolve throughout the three phases. Frictions and divergences between the stakeholders are the most common reasons for delays and miscarriages of projects. For this reason, it is strongly recommended that these kinds of projects are directed by a high authority with a moderating role and that an interinstitutional dialogue framework exists from the beginning. The stakeholders and their key relationships during each phase will now be outlined.
2.2.1. Start-up phase

Normally, the idea of developing a logistics platform arises from an initiative from a ministry (usually the ministry of transport and/or infrastructure) or a promoting authority (e.g. a port authority, a railway company, an agency specializing in economic development or logistics, a regional or local authority). The idea of a logistics platform should ideally form part of a more general logistics strategy.

With respect to the promoting authority, several stakeholders may form a central core of institutions that are more directly involved in the fields of freight transport and logistics and engaged in the development of a logistics strategy.
Nevertheless, the development of this logistics strategy, of which platforms form a part, may require a long consultation process with several stakeholders that already have their own strategies and expectations:

**Transport infrastructure operators or authorities** (ports, airports, railways, etc.) that have their own sectoral strategies. Such strategies are often focused on their own field of activity, and efforts to integrate them into a joint vision may therefore be necessary.

Sometimes these authorities have huge technical and economic resources, even compared to the ministries to which they belong. They also have their own revenue sources that are independent of the state budget. For that reason, their active participation in the central core of promoting institutions is desirable whenever the proposed projects address their specific field of intervention (ports for port logistics areas, railways for rail/road projects and airports for air freight zones).

**Sectoral ministries.** The logistics strategy should be coordinated with several sectoral ministries, particularly in the fields of:
- **Transport:** This is responsible for national transport plans and policies to regulate, organize and modernize freight transport, etc. Such ministries increasingly include specialized logistics units.
- **Public works:** This is responsible for infrastructure plans and sometimes centralizes or supervises all public works contracts.
- **Finance:** This is responsible for allocating budget funds and normally runs the customs department.
- **Economy:** This is usually responsible for programmes to support strategic sectors and will therefore be more motivated if such programmes involve logistics.
- **Environment:** This is responsible for approving major projects with a significant environmental impact. It normally has a strategy to reduce the environmental impact of transport.
- **Interior:** This is responsible for security, which is sometimes an important issue for foreign trade. It may also have local government departments under its control.
- **Other:** Agriculture (important for agri-food products), health, planning, etc.

The success of the strategy and the logistics platforms depends on aligning the sectoral strategies of the different ministries, which sometimes have very little knowledge of logistics and its importance.

**Professional organizations.** These include:
- **Employers’ organizations, chambers of commerce, etc.** Their main interest is to ensure that the strategy and the proposed logistics platforms create opportunities for businesses in general and promote economic growth. Nevertheless, sectoral interests may emerge, especially in the construction industry (since construction companies will want to participate in the proposed works), the property sector (concerned about competition with industrial and private logistics property), the transport sector (see point below), small businesses (that wish to ensure equal, or even favourable, treatment compared to large companies), etc.
- **Industry organizations** (transport operators, logistics operators, forwarding agents, shippers, etc.). The transport/logistics sector is not homogeneous, but encompasses a wide range of stakeholders in organizations with sometimes conflicting interests (e.g. the interests of shippers versus the interests of carriers; those of transport and logistics companies versus individual carriers; large operators versus small operators; operators specialized in international/long-distance transport versus operators specialized in local-level distribution). The challenge is to clearly define the interests and expectations of the various subsectors and find a way to balance them.
- **Trade unions.** Their main interest is to support job creation and stability and improve employment conditions. They are generally supportive of logistics platforms.
It is a good idea to invite professional organizations to participate in the development of the logistics strategy and determine the priority platform projects. These organizations also have a significant capacity to build opinions, not only among their members, but also among the general public. It is also important to note that professional organizations include some of the logistics platform's future clients.

### Subnational governments

Very often, the territorial dimension of the logistics strategy and, of course, the proposed platforms is related to their location. Subnational authorities (regional, provincial, local, urban, etc.) may have their own economic development and regional planning strategies. It is always advisable to attempt to align national and subnational strategies to prevent potential disagreements and a lack of support for the project among local stakeholders.

#### 2.2.2. Implementation phase

During the implementation phase, the structure created to develop the logistics platforms (the LPD) is responsible for leading the process. Sometimes the LPD evolves naturally from the initial central core of institutions involved. However, the participation of the stakeholders in the LPD, as a structure with the capacity and financial resources to implement the project, reflects the contributions in cash or in kind made by the partners.

The stakeholders and contributions during the implementation phase are as follows:

A. **Ministries and state bodies.** The approval of the project (layout, land development plan, etc.) hinges on the favourable opinion of several sectoral ministries and specialized agencies. In addition, if the public sector has substantial involvement, the LPD always remains under the financial control of the ministry of finance and/or the authorities that control the government's accounts. Finally, the LPD may remain under the direct control of a ministry or another authority (e.g. the port authority). Some recommendations regarding coordination between the LPD and the authorities to which it belongs are provided below.

B. **Subnational governments.** Municipal and regional authorities, etc., have responsibilities in the field of spatial and urban planning, which makes them key to the approval of layout and land development plans, building permits, etc. Even if the logistics platform is subject to special procedures due to public interest, with increased state powers, the support of municipal authorities or urban or rural districts always facilitates the successful integration of the platform into the territory and helps create a climate of collaboration.

C. **Connections and public services.** Since the platform requires connections to public service networks and infrastructure, the companies or departments that control these areas also become stakeholders with the capacity to facilitate or prevent implementation. The most important stakeholders in this area include:
   - The road authority: authorization and terms for connection to the main roads.
   - The motorway operating company (if any) for connection to a motorway.
   - The water sanitation authorities, for connection to a wastewater treatment plant.
   - Water supply companies.
   - Power supply companies.
   - Telecommunications companies.

D. **Investors and financers.** These are the stakeholders that are involved in the financial structure of the project and provide resources for implementation of the platform. These stakeholders require the following:
   - In general: detailed information on the technical studies carried out to assess the feasibility and risks of the project.
• Investors: an acceptable ratio between the expected return and the risks.
• Financers: acceptable collateral for repayment of the debt.

Owners of the land and business activities to be relocated. Land acquisition is a critical activity for the implementation of a logistics platform, since it has an impact on the overall costs of the project and its feasibility. It often involves a significant social dimension and the media can increase public awareness. However, owners sometimes engage in strategies with opinion groups or the media in order to increase the price of their land.

Social organizations and residents. These stakeholders are more concerned about the negative impacts of the platform on their environment, especially in terms of heavy vehicle traffic, pollution, noise, etc. Good communication and appropriate educational campaigns are recommended, because these stakeholders usually have very little knowledge of logistics activities and have preconceived ideas.

The question of employment is also relevant. Resident communities generally want to benefit from the employment opportunities offered by the platform. Nevertheless, the LPD may be forced to manage local expectations and make it clear that most of the job opportunities will be offered by the companies based in the platform, and not by the developer itself. However, it is always desirable for the LPD to become actively involved in promoting local recruitment by the companies based in the platform.

Professional transport and logistics organizations. The needs and expectations of the different subsectors with respect to logistics platforms vary (e.g. heavy goods vehicle parking for carriers, large warehouses for major operators, small warehouses for SMEs, container platform for shipping operators). While it is difficult to meet all expectations, the LPD is required to seek a balance, in terms of the functional design and range of spaces available in the platform, between:
• The demands of professional transport organizations.
• The demands highlighted in market research studies conducted with potential clients (it is important to stress that these are not always the same as professional organizations).
• And, finally, the correct combination to achieve profitability levels that ensure the long-term viability of the LPD.

Clients. These are the potential clients of the logistics platform, including logistics operators, carriers and providers of the services offered in the platform. From the early stages of the project, the LPD must commit to championing the interests of the project and generating favourable support among potential clients.

The key factor for attracting transport and logistics companies to the platform is price. The quality of the infrastructure and services is not always sufficiently recognized by many companies, especially those that are not familiar with logistics platforms. This is why logistics operators and carriers operate on such slim profitability margins. Thus, one of the priorities of the LPD is to explain the importance of quality and services and translate these advantages into cost-efficiency terms that companies can understand.

2.2.3. Operational phase

When the logistics platform is operational, the relationships between the LPD and stakeholders take on a long-term vision. This means that the LPD must assure:
• The promoting authorities that the platform activities and services are consistent with the proposed objectives and do not become distorted over time. That it will also support the sectoral strategies of key stakeholders in the national logistics system.
• Investors and funders that it will fulfil its commitments in terms of profitability and debt repayment.
• **Clients and operators** that the platform will offer logistics spaces and quality services at acceptable prices.

• **Local authorities and residents** that the platform will create employment opportunities and promote good neighbourly relations.

The key to a successful logistics platform project is a great deal of education to explain the project and create a sense of belonging. It also requires diplomacy to manage the capabilities and expectations of the different stakeholders. Finally, complex, large-scale projects require effective and powerful units to implement them.
CHAP. 3

START-UP PHASE
3.1. Promotion and logistics strategy

Generally speaking, political authorities take the first steps towards the development of logistics platforms in countries where there is no dynamic to encourage their creation.

Platform projects should ideally be framed within a logistics strategy with a broader scope. This logistics strategy may be conceived on a national, regional or local scale and even at hub level (port, airport, etc.).

Logistics strategies usually combine several objectives, including those listed below. These are not mutually exclusive objectives; on the contrary, they are interconnected.

- To modernize the transport and logistics sector. This normally involves reducing informality in these sectors, increasing the size of companies and promoting professionalization.
- To increase the efficiency of supply chains and reduce logistics costs in order to strengthen the competitiveness of national companies, reduce import costs and increase the competitiveness of exports.
- To consolidate and organize transport flows. This may involve organizing the distribution of transport and logistics companies across the territory, organizing logistics in urban areas and reducing the negative externalities of transport (pollution, accidents, noise, etc.).
- To attract operators and port maritime flows by attracting consolidation/deconsolidation and value-added logistics activities to the port’s area of influence or increasing the hinterland of ports with dry ports.
- To create job opportunities and promote economic development related to the logistics sector.

In order to lay a solid foundation for the development of logistics platforms, the following recommendations should be taken into account during these initial phases:

- There must be strong political momentum that is sustained over time, because making a logistics platform project a reality is a medium-term commitment.
- This momentum should preferably come from the highest political authorities possible. This will encourage other ministries and institutional stakeholders to take ownership of the initiative, break the inertia and ensure that the required support and resources are mobilized.
- It is crucial that the public and private sectors agree on the assessment, objectives and especially the relevance of the main projects arising from the logistics strategy.
- When logistics platform projects require considerable investment, it is important to ensure that there is a stable financial and regulatory framework throughout the entire implementation period.

3.2. Definition and preselection of projects

Within the framework of the logistics strategy, one or several logistics platforms will be defined. A project is more than an idea or abstract location, and it requires the definition of a number of elements, including:

—Table 09: Elements for the preliminary definition of a logistics platform project—

<table>
<thead>
<tr>
<th>Physical and infrastructure elements</th>
<th>Strategic and commercial elements</th>
<th>Institutional elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Strategic function</td>
<td>Stakeholders</td>
</tr>
<tr>
<td>Indicative surface area</td>
<td>Project objectives</td>
<td>Stakeholders that are key success factors</td>
</tr>
<tr>
<td>Infrastructure to support the project</td>
<td>Framing of the project within the logistics strategy</td>
<td>Potential partners</td>
</tr>
<tr>
<td>Other existing and/or necessary infrastructure</td>
<td>Target operators</td>
<td>Planned development model</td>
</tr>
<tr>
<td>Key strengths and weaknesses</td>
<td>Planned services</td>
<td>Key opportunities and risks</td>
</tr>
<tr>
<td>Indicative budget</td>
<td>Potential market</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Support measures identified</td>
<td></td>
</tr>
</tbody>
</table>
To ensure a successful project preselection process, some principles should be applied, including those mentioned below:

- **Public interest**: The planned logistics platforms should be designed to bring benefits to all or most of the potential beneficiaries.
- **Opportunity**: The planned logistics platforms should strengthen (or at least not hinder) other projects and initiatives.
- **Added value**: The proposed logistics platforms should offer added value to improve the efficiency and competitiveness of supply chains and logistics operators.
- **Prefeasibility**: The planned logistics platform project should be reasonably achievable.
- **Availability**: The land and infrastructure required to make the planned logistics platform a reality must be available at that moment or within a reasonable time frame.
- **Complementarity**: The proposed logistics platforms must complement other measures to modernize and upgrade the national logistics sector.
- **Priority**: It is necessary to evaluate the choice of priority logistics platforms in terms of the expected results and in terms of other projects or measures.

During this phase, several stakeholders will defend their sectoral, local or individual interests, sometimes by exploiting public opinion or the media. There is a risk that the project preselection and priority process may be affected by external interference.

The functional definition of platforms is addressed in more detail in Section 6 of this Guide.

### 3.3. Reservation of land

When a logistics platform project merits preselection after application of these criteria, land should be reserved to implement it. This stage of the process should not necessarily involve the acquisition of land, but measures should be applied to effectively prevent speculation (an increase in land prices), the installation of buildings or business activities (sometimes done in an opportunistic manner) that will need to be relocated and, finally, anything new that may impede the project or make it more expensive.

Very often, feasibility studies start on sites that have not yet been secured, and at the end of the study it is discovered that the land is no longer available or that some of the initial information (especially the price of the land) has changed substantially. It is important to stress the fact that **without land there is no project**.

The incorporation of platforms into the territory (macro-location and micro-location) is addressed in detail in Section 6 of this Guide.

### 3.4. Feasibility studies

Once a project has been defined and the land reserved, the subsequent phase consists of carrying out feasibility studies. These studies aim to assess the extent to which the project meets the objectives, how well suited it is to the market conditions and its technical and economic viability. The outcome of feasibility studies not only indicates whether to continue or halt the project, but also **the conditions under which the project may become feasible**. If these conditions seem too onerous, it is necessary to assess the possibility of redefining the project, postponing its implementation until the conditions are more favourable or abandoning it altogether.

The following is a list of the main components of feasibility studies, along with some aspects to assess and the results to be achieved. The results to be used as input data for other components of the studies are also indicated.

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3. Multilateral banks have developed several methodologies to analyse the feasibility of projects. This section is based on the methodology established by the EIB for feasibility studies within the framework of the Logismed initiative conducted so far.
The proposed approach involves structuring the feasibility studies into five key components:

- The market study (MS)
- The technical feasibility study and pre-project summary (PPS)
- The brief environmental and social impact assessment (ESIA)
- The economic and financial study (EFS)
- The institutional framework study (IFS)

The five components may be outsourced to a single market or each component may be outsourced separately to consultancies that specialize in each of the fields.

3.4.1. Market study (MS)

The objective of the market study is to assess how appropriate the proposed platform and its functions and services are for the size of the market, for the needs and expectations of potential clients, and for the framework of competition with the other options available on the industrial and logistics property market. The MS also aims to define a strategic approach and a value proposition for the platform in order to focus the marketing strategy. The MS also seeks to analyse price trends and commercialization models. This data is key for the economic and financial study.

<table>
<thead>
<tr>
<th>Aspects to evaluate</th>
<th>Results to be achieved (*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volumes, types and flows of goods</td>
<td>Value proposition of the platform compared to the competition</td>
</tr>
<tr>
<td>Demand for logistics services</td>
<td>Price range tailored to potential clients (EFS)</td>
</tr>
<tr>
<td>Analysis of the industrial/logistics property market and the competition</td>
<td>Project schedule (EFS, PPS)</td>
</tr>
<tr>
<td>Description of the demand: logistics operators, end clients, investors, auxiliary service providers, etc</td>
<td>Proposal of commercialization models (sale, rental, other) in line with the function of the platform and the demands of potential clients (EFS, IFS)</td>
</tr>
<tr>
<td>Evaluation of the demand and future outlook</td>
<td>Proposal of other methods (incentives, etc.) for attracting target operators (EFS, IFS)</td>
</tr>
<tr>
<td>Definition of the conditions to attract target clients (type of plot or warehouse, commercialization model, price range, etc.)</td>
<td></td>
</tr>
<tr>
<td>Definition of the project's strengths in order to establish a marketing strategy</td>
<td></td>
</tr>
<tr>
<td>Analysis of other conditions (incentives, services, regulatory framework, etc.) to attract operators and investors</td>
<td></td>
</tr>
</tbody>
</table>

(*) The other studies for which these results constitute input data are indicated in parentheses.

3.4.2. Technical feasibility study and preliminary project design

This study aims to obtain the following results:

A Assessment of the starting conditions and the technical feasibility of the project.
B Proposal of an indicative site plan (one or several options), including a phasing.
C An indicative budget for the selected option, including a phasing, if appropriate.

---

4 See Section 6 of this Guide, which addresses the technical aspects of the functional design in detail.
This study must be based on an assessment of the starting conditions. An indicative list of the data required for this assessment is as follows:

- Perimeter of the project area.
- Ownership of the land.
- Topography of the area.
- Geological features.
- Accessibility of the land.
- Service infrastructure networks.
- Other existing networks affected by the project (power lines, oil pipelines, roads, railway lines, etc.).
- Planned infrastructure that will be affected by the project.
- Other land uses (e.g. civil aviation rights-of-way, archaeological sites, areas susceptible to flooding).
- Alignment with territorial and urban development plans and rules.

The proposed site plan constitutes the key data on which to base the ESIA. In turn, through a feedback process, the guidelines of the ESIA will influence the final option selected for the PPS. The site plan also determines the commercial focus or management model of the key components, which in turn feeds into the IFS.

Finally, the budget constitutes the key data on which to base the EFS. Sometimes the initial site plan turns out to be prohibitively expensive and makes the feasibility conditions unattainable. In this case, cheaper options should be analysed.

The site plan created as part of the feasibility study should not be overly detailed. A scale between 1:10,000 and 1:25,000 is usually suitable, depending on the size of the site.

---Table 11: Technical feasibility study and pre-project summary---

<table>
<thead>
<tr>
<th>Aspects to evaluate</th>
<th>Results to be achieved (*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Road connections and rail links (if any)</td>
<td>- Proposed site plan (ESIA, IFS)</td>
</tr>
<tr>
<td>- Connections to service networks and infrastructure</td>
<td>- Indicative budget CAPEX (EFS)</td>
</tr>
<tr>
<td>- Functional design to optimize investment costs and</td>
<td>- Phasing (EFS)</td>
</tr>
<tr>
<td>operating costs</td>
<td></td>
</tr>
<tr>
<td>- Definition of intermodal infrastructure, key structural components, service areas, etc.</td>
<td></td>
</tr>
<tr>
<td>- Definition of the arterial internal road</td>
<td></td>
</tr>
<tr>
<td>- Proposal of areas and plots for different operator</td>
<td></td>
</tr>
<tr>
<td>types and logistics functions</td>
<td></td>
</tr>
<tr>
<td>- Potential conflicts with existing or planned</td>
<td></td>
</tr>
<tr>
<td>infrastructure</td>
<td></td>
</tr>
<tr>
<td>- Alignment with territorial and zoning regulations</td>
<td></td>
</tr>
<tr>
<td>- Environmental requirements</td>
<td></td>
</tr>
</tbody>
</table>

(*) The other studies for which these results constitute input data are indicated in parentheses.

Sometimes it is necessary to separate “intra-muros” (on-site) elements (infrastructure and developments within the perimeter of the project) from “extra-muros” (off-site) elements (external infrastructure and connections) in order to assign investment responsibilities between several stakeholders. Intra-muros infrastructure is often the responsibility of the developer, while extra-muros infrastructure is assigned to other stakeholders.
3.4.3. Brief environmental and social impact assessment (ESIA)

The ESIA proposed at this stage aims to identify the key environmental and social issues and to propose measures to address, mitigate and compensate for impacts. This study is conducted at macro level and aims to identify any major environmental constraints and to frame the environmental studies and social consultation processes carried out within the legislation of each country, rather than replace them. It is important to note that the feasibility of the project is still being assessed at this stage and that more detailed environmental and social studies will be conducted during subsequent phases (detailed technical studies). This assessment must collect, when appropriate, the IFIs requirements in environmental matters and define the scope of the detailed ESIA.

—Table 12: Brief environmental and social impact assessment—

<table>
<thead>
<tr>
<th>Aspects to evaluate</th>
<th>Results to be achieved (*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Impact of the project on protected or sensitive natural areas</td>
<td>· Proposed measures to address/mitigate environmental impacts (APS)</td>
</tr>
<tr>
<td>· Hydrological impacts (water demands, sanitation, areas susceptible to flooding, etc.)</td>
<td>· Proposed measures to address the demand for public services (APS, IFS)</td>
</tr>
<tr>
<td>· Summary of the project’s environmental impacts (waste, pollution, noise, etc.)</td>
<td>· Proposed measures to address the social impacts (EFS, IFS)</td>
</tr>
<tr>
<td>· Summary of the main social impacts (employment, education, gender, etc.)</td>
<td>· Definition of the ToR for the detailed environmental assessment</td>
</tr>
<tr>
<td>· Summary of the demand for public infrastructure and services (e.g. public transport, housing, social services, healthcare)</td>
<td></td>
</tr>
</tbody>
</table>

(*) The other studies for which these results constitute input data are indicated in parentheses.

3.4.4. Economic and financial study

This study includes two components:

A The economic study or cost-benefit study. This study evaluates the impact of the project on the national or regional economy. The economic study determines whether the project costs and externalities are offset by the savings generated, the reduction in social costs or the improvements made to the competitiveness or efficiency of companies. Finally, it establishes the profitability achieved by the community for each unit of money invested in the project.

B The financial study. This study evaluates the intrinsic profitability of the project and the level of profitability for the entities that invest money. This financial analysis makes it possible to determine the conditions under which the project is financially viable, the net present value, the rate of return and the pay-back period of the invested money. Finally, it aims to determine the profitability achieved by the developer for each unit of money invested.

There are several methodologies to assess the economic and financial impact, but practical examples relating specifically to logistics platforms are very rare6.

The table below illustrates the key aspects to be assessed by an EFS and the results to be achieved:

---

6 Examples of manuals on the economic and financial assessment of projects:

---
—Table 13: Economic and financial study—

<table>
<thead>
<tr>
<th>Aspects to evaluate</th>
<th>Results to be achieved (*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Definition of the necessary investment (CAPEX)</td>
<td>· Proposal of the most appropriate business model (IFS)</td>
</tr>
<tr>
<td>· Estimated operating costs (OPEX)</td>
<td>· Financial rate of return. Assessment of the funding requirements and proposal for the most appropriate financial structure (IFS)</td>
</tr>
<tr>
<td>· Assessment of the financial feasibility of the project for the developer</td>
<td>· Assessment of the economic impact on the local and national economy or economic rate of return (ESIA)</td>
</tr>
<tr>
<td>· Assessment of the financial feasibility of the project for the investor</td>
<td></td>
</tr>
<tr>
<td>· Conditions to make the project feasible</td>
<td></td>
</tr>
<tr>
<td>· Sensitivity analysis covering the key variables</td>
<td></td>
</tr>
<tr>
<td>· Analysis of the financial structuring options</td>
<td></td>
</tr>
<tr>
<td>· Analysis of the business model options</td>
<td></td>
</tr>
</tbody>
</table>

(*) The other studies for which these results constitute input data are indicated in parentheses.

3.4.5. Institutional framework study

The objective of this study is to propose an institutional model for the development of the logistics platform based on data from the previous studies. It is important to note that the institutional and economic/financial studies are highly interdependent, especially with respect to aspects such as the business plan, commercialization model, financing plan and proposed structure.

The following table summarizes the aspects to be assessed and the results to be achieved in this study:

—Table 14: Institutional framework study—

<table>
<thead>
<tr>
<th>Aspects to evaluate</th>
<th>Results to be achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Definition and description of key stakeholders and their responsibilities</td>
<td>· Proposal of the most suitable business plan</td>
</tr>
<tr>
<td>· Initial assessment of the regulatory framework, including aspects such as:</td>
<td>· Proposal of the institutional architecture and corporate model for the LPD</td>
</tr>
<tr>
<td>· Coordination of public stakeholders</td>
<td>· Proposal of mechanisms for private sector participation</td>
</tr>
<tr>
<td>· Instruments to encourage investment</td>
<td>· Proposal of the operational structure (organizational structure, personnel, functions) of the LPD</td>
</tr>
<tr>
<td>· Regulatory framework for public-private partnerships</td>
<td>· Initial allocation of responsibilities and risks. Proposal of measures to address or mitigate risks</td>
</tr>
<tr>
<td>· Definition and evaluation of the project risks</td>
<td>· Proposal of legal or regulatory changes to accelerate the development of the project</td>
</tr>
<tr>
<td>· Definition of the most suitable business models</td>
<td>· Proposed roadmap and an indication of the steps to follow</td>
</tr>
<tr>
<td>· Guidelines for commercialization</td>
<td>· Proposal of additional studies required to move towards implementation</td>
</tr>
<tr>
<td>· Evaluation of the organizational models of the LPD with respect to the starting conditions and expected targets</td>
<td></td>
</tr>
</tbody>
</table>

3.5. Choice of business model and creation of the LPD

3.5.1. Functions of the LPD and implications for the business model

One of the first questions that requires clarification relates to the functions and activities that will be carried out by the LPD. It is important to remember that LPs are required to play a double strategic function:
• **Logistics property function**: to provide specialized areas and infrastructure for logistics and goods transport. This is their main function.

• **Promotional function**: to ensure that platforms become hubs for boosting and promoting initiatives aimed at modernizing the logistics sector. This is their complementary function.

It is important to note that, in terms of the business model, these two functions are very different. The table below presents the main features:

—Table 15: Description of the logistics property function and promotional function—

<table>
<thead>
<tr>
<th>Logistics property function</th>
<th>Promotional function</th>
</tr>
</thead>
<tbody>
<tr>
<td>This is commercial in nature, i.e. it involves the creation of property products that will be placed on the market</td>
<td>This is similar to a public administration function</td>
</tr>
<tr>
<td>It takes place within a competitive market context</td>
<td>The activities do not take place within a competitive framework</td>
</tr>
<tr>
<td>It requires the mobilization of large sums of money for investment and to repay the debt</td>
<td>Capital costs are typically low, but the operating costs can be substantial</td>
</tr>
<tr>
<td>It creates revenue (sale, rental, etc.) to offset the capital and operational costs</td>
<td>It involves activities that create either no revenue or not enough revenue to cover costs</td>
</tr>
<tr>
<td>It is affected by economic cycles, especially cycles in the industrial/logistics property market</td>
<td>The activities are countercyclical in nature, i.e. they are required more during periods of recession</td>
</tr>
<tr>
<td>The personnel involved in this function must have a business background</td>
<td>The personnel involved in this function must have a commercial profile, but also a public service profile</td>
</tr>
</tbody>
</table>

Combining these two functions is not always easy. The way they are combined has an impact on the nature and legal status of the LPD. The following measures are recommended:

• A balance between the two functions must be achieved. The promotional activities should not distract the LPD from its main purpose, which is the development of a feasible and operational platform project. However, the developer of a Logismed platform must be distinguishable from conventional private developers. This balance must be reflected in the technical frameworks and governance structures.

• Cross-subsidies between the logistics property and promotional activities should not be hidden in the company accounts, since it must always be possible to evaluate the costs and impacts of the promotional activities on the company’s accounts. Wherever possible, the promotional activities should be financed by resources from the state.

3.5.2. Single-platform or multi-platform structures

The second question is whether the structure created will be limited to the development and/or management of a single logistics platform project or several (a platform network). This decision depends on factors such as:

• Whether a number of projects have been defined in the territory (national, regional, local, port, etc.) in which the LPD has responsibilities.

• The willingness of the LPD partners to develop more than one project.

• The technical and/or economic capacity of the LPD to tackle more than one project.

In practice, there are several examples of structures that have been created to develop one single logistics platform project that have then turned into multi-platform developers after the initial project was completed and made operational. In these cases, the developers can take advantage of the technical teams, which are sometimes redundant once the project is operational, and the experience gained in the first project to carry out another project.

---

6 Such examples include CIMALSA in Spain, Sogaris in France and Interporto Bologna in Italy.
Another approach is to create an umbrella structure that comprises several single-platform LPD, either with a holding company structure (i.e. with a share in the capital of the platforms) or with a more flexible structure such as an association or public interest grouping, for joint promotion or stimulation.

3.5.3. Public and private participation

A third key aspect in the choice of business model of the LPD is the level and type of public and private participation in the project.

As explained above, logistics platforms are more complex than traditional industrial parks, since they require heavier investment in infrastructure and include services that are not always available in industrial parks. While private sector involvement is usually sufficient for the development of industrial parks, public sector involvement is most often required for the development of logistics platforms. In fact, public stakeholders pursue general interest objectives that go beyond the financial returns expected by private investors.

Several types and levels of public sector involvement are possible in logistics platforms. For private stakeholders, the profitability and thus the attractiveness of investing in logistics platforms differ depending on the type of area and service. In line with the three area categories set out in this Guide, the following table summarizes their appeal for the private sector and the most usual management mode adopted for each of these areas.

---

**Table 16: Profitability and usual management mode of the areas in a logistics platform**

<table>
<thead>
<tr>
<th>Area type</th>
<th>Usual management mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logistics areas</td>
<td></td>
</tr>
<tr>
<td>Warehouses for sale or rent</td>
<td>Management mode usually private. Attractive to the private sector</td>
</tr>
<tr>
<td>Plots for logistics operators (for sale)</td>
<td>Management mode usually private. Attractive to the private sector</td>
</tr>
<tr>
<td>Plots for logistics operators (for rent)</td>
<td>Management mode usually public. Less attractive to the private sector</td>
</tr>
<tr>
<td>Plots for large-scale logistics (areas for bulk cargo, vehicle logistics, container depots, etc.)</td>
<td>Fairly unattractive to the private sector, with the exception of areas where the land prices are very low. In many logistics areas, such plots for large-scale logistics remain publicly owned</td>
</tr>
<tr>
<td>Service areas</td>
<td></td>
</tr>
<tr>
<td>Services for vehicles: parking areas, petrol stations, garages, etc.</td>
<td>These services are sometimes strategic for the platform and offer good profitability. They appeal to the private sector, but the public party may decide to retain operations to guarantee service standards and, at the same time, use the profits to offset its loss-making services</td>
</tr>
<tr>
<td>Services for people and companies: service centres, offices, commercial premises, etc.</td>
<td>These services are strategic for the platform, but they normally have low rates of return, since the rental fee needs to remain very competitive with more central business locations</td>
</tr>
</tbody>
</table>

---

7 Examples of such holding-type structures: Andalucía Logistics Network in Spain and Bayernhafen GmbH in Bavaria, Germany. Examples of less formal networks include the joint association of the Pyrenees-Mediterranean intermodal platform in Roussillon (France), the CyLoG network in Spain and the Euskadi-Aquitaine transnational logistics platform between these two neighbouring regions (Spain and France).
### Service areas

<table>
<thead>
<tr>
<th>Value-added services: mainly services for foreign trade (customs), training, promotion, etc.</th>
<th>These services are highly strategic for the platform and are normally under public management, but PPP formulas can be explored</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intermodal areas</td>
<td></td>
</tr>
<tr>
<td>Rail-road terminals (containers, bulk cargo, etc.)</td>
<td>These normally require large areas and substantial investments in infrastructure. The profit margins are therefore low. They are often on public land that belongs to railway companies</td>
</tr>
<tr>
<td>Modal interchange zones, front-line airport and port terminals, etc.</td>
<td>These terminals are normally located on public land (port or airport authorities) and operated under concession contracts</td>
</tr>
</tbody>
</table>

The table illustrates the areas that are potentially most attractive to the private sector. This may be useful for guiding the negotiations between public and private partners when creating the LPD and for distributing their roles and contributions.

### 3.5.4. Types of public-private models for the LPD

The type of structure for the LPD depends on factors such as the purpose or objectives of the platform, the liberal or interventionist tradition of each country, the maturity of the private sector and the existence of potential private partners, the nature and complexity of the project, ownership of the land, and the scale of investment required. Based on these factors, the main public-private participation models are described below.

#### 3.5.4.1. 100% public model

Logistics developers with 100% public participation can take several forms:

- **An autonomous or semi-autonomous administration unit** such as a ministry, port authority, public company with a wider business scope, etc.

- **A specialized public institution.** Such organizations may be administrative or commercial in nature. In the latter case, they have the ability to act as economic players on the market (buying, selling, billing, etc.). In general, public institutions have greater flexibility than units controlled by government departments.

- **A joint association** that brings together several public stakeholders (usually local authorities) with state institutions and sometimes also private companies. Joint associations are most often subject to the same rules as public institutions, so the limitations involved are similar.

- **A public company.** Public companies are, by their very nature, commercial and enjoy greater independence from government bodies to organize their business. They also have greater flexibility in commercialization, because they are generally subject to less stringent public procurement regulations.

The key features and risks associated with this model are outlined in the following table, along with some recommendations.
### Table 17: 100% public model

<table>
<thead>
<tr>
<th>Features</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>The construction work is entrusted to a 100% public entity</td>
<td>Structures with a more commercial focus are recommended: companies are preferable to public institutions and units controlled by government departments</td>
</tr>
<tr>
<td>The public sector bears all risks</td>
<td>Create flexible and professionalized structures</td>
</tr>
<tr>
<td>The aim is to maximize the economic and social benefits. The return on equity is a secondary objective</td>
<td>Establish a strong governance and supervisory framework</td>
</tr>
<tr>
<td>This model can facilitate political support for the project and coordination of the various public stakeholders. However, coordination of the different stakeholders may be compromised due to political motivations</td>
<td>Facilitate the presence of professionals and/or independent experts in management and supervisory bodies</td>
</tr>
<tr>
<td>This model poses a risk of bureaucratization and of creating overly burdensome structures, and may be subject to political interference</td>
<td>Ensure that the LPD falls under the ministry or government department that is most committed to the objectives of the logistics strategy</td>
</tr>
<tr>
<td>The developer is completely subject to public procurement requirements and government controls</td>
<td>Ensure proper coordination between the LPD and the ministries and government authorities that are key to the success of the platform</td>
</tr>
<tr>
<td>It is less able to respond to the demands of clients and the logistics property market with the required flexibility</td>
<td></td>
</tr>
</tbody>
</table>

### 3.5.4.2. Joint venture

This is a company with varying levels of participation from the public and private sector. When the public sector has a majority stake, there are significant implications, including submission to government staff regulations, public procurement rules, administrative and financial inspections and consolidation of the debt with that of the state.

### Table 18: The joint venture model

<table>
<thead>
<tr>
<th>Features</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creation of a joint enterprise with public and private contributions. The level of enforcement of rules on state companies varies depending on public sector participation</td>
<td>It is necessary to define the nature of the most suitable private partners, i.e. those with the greatest alignment of interests with those of the public partner (e.g. investment funds, specialized operators, construction companies)</td>
</tr>
<tr>
<td>The risks are shared between the public and private partners</td>
<td>In general, logistics operators are not the most appropriate partners, since they will be the users of the platform. This could lead to a conflict of interest with the developer</td>
</tr>
<tr>
<td>The contribution of public partners may be in kind (e.g. land) and that of private partners in cash</td>
<td>It is advisable to establish a division of roles between the public and private partners, e.g. through a shareholders' agreement. Very often, this division means that the public party maintains control over the objectives and strategic decisions (e.g. appointment of the chairman of the board), while daily operations are entrusted to the private party (appointment of the director/manager)</td>
</tr>
<tr>
<td>The risk of political interference is reduced</td>
<td></td>
</tr>
<tr>
<td>Conflicts between the priorities of the public and private partners</td>
<td></td>
</tr>
<tr>
<td>Sometimes the risks associated with the project are too high to attract the interest of private partners. In this case, it is possible to launch the project with a predominantly state-owned company and to delay the entrance of private capital until a more advanced phase in the project, when some of the key risks have been remedied (partial privatization)</td>
<td></td>
</tr>
</tbody>
</table>
3.5.4.3. PPP model

The usual model for a PPP is a concession contract that franchises a mercantile company to use public land for profit operations for a period of time. The government department that grants the concession establishes the operating conditions, the required investments, the operating period and, if applicable, the fees to be charged. The conceded company is generally private; however, there are examples where it is joint or even public (sometimes with medium-term privatization plans, as explained above). PPPs can take many forms; one of the most common is the so-called BOT (build-operate-transfer).

---Table 19: PPP model---

<table>
<thead>
<tr>
<th>Features</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>The public sector still owns the land but grants the development, construction of infrastructure and buildings, marketing and management to a private company for a certain period of time</td>
<td>Striking the right balance between flexibility and stability in PPP contracts is not always easy. On the one hand, a contract should be reasonably flexible to adapt to changing conditions throughout its term. However, continuous contract renegotiations distort the objectives and criteria set out in the bidding procedures and are normally non-transparent</td>
</tr>
<tr>
<td>Risk allocation between the private and public sides is key to the success of a PPP. Normally, the construction and commercial risks fall on the private partners, while the regulatory risks fall on the public partners</td>
<td>Awarding authorities must be very cautious when selecting the partners for the development company in a PPP framework. Partners should ideally contribute technical and financial capacities and have previous experience in such operations</td>
</tr>
<tr>
<td>The duties and responsibilities of each party are established in contract provisions. PPP contracts are always complex, sometimes unstable (frequent renegotiations) and need a permanent monitoring framework</td>
<td>Minimum capitalization thresholds should be set to ensure that the developer in a PPP framework has a solid financing structure. Debt/capital ratios of less than 80/20 should be approached with caution</td>
</tr>
<tr>
<td>When the PPP is established on public land, it is impossible to sell plots and premises. Only leases, rental agreements and other temporary transfer arrangements are possible. Normally, the awarding authority sets a range of acceptable rental prices.</td>
<td>Within the framework of a PPP, the logistics developer should establish attractive commercial formulas to counteract the limitations created by the prohibition on selling</td>
</tr>
</tbody>
</table>
| Although this system may be attractive to operators, since there is no need to invest in land acquisition, the fact that they cannot sell any plots or premises may represent a significant constraint to attracting operators to logistics platforms, except when they are located on highly strategic and non-reproducible sites. The concession system normally works well in logistics areas inside port and airport enclosures, but this is not always the case in road-based platform types. It also depends on how familiar operators are with temporary transfer formulas | |}

3.5.4.4. Model with differentiated management for various areas

This model is based on the distribution of areas in the platform between several partners. This may be the result of various situations:

- One or more owners of the original land have the right to maintain ownership of a portion of the developed plots.
- Some areas of the platform (functional areas) require a different management model, for example, rail and intermodal areas managed by the railway company.
- The public sector retains the development or management of specific areas that have strategic value or are designed for activities whose expected return is not sufficient for private partners.
—Table 20: Model with differentiated management for various areas—

<table>
<thead>
<tr>
<th>Features</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>The development and/or management of certain areas in a platform are distributed between public and private stakeholders</td>
<td>It is advisable in this case to have an integrated management body to ensure the project’s overall consistency</td>
</tr>
<tr>
<td>It is normal for the infrastructure in a platform to be controlled by different owners, e.g. the railway company as the owner of the intermodal area.</td>
<td>The governance structure should pay particular attention to ensuring that the standards of quality and service are as homogeneous as possible in both the area under public management and the privately managed area</td>
</tr>
<tr>
<td>The risks and returns expected by the different stakeholders vary depending on their assigned areas</td>
<td>It is therefore necessary to establish a code of conduct to prevent the public and private stakeholders from competing for the same operators</td>
</tr>
<tr>
<td>This may cause a lack of internal consistency in the platform and may mean that the different stakeholders compete with each other to attract the same operators</td>
<td></td>
</tr>
</tbody>
</table>

3.5.4.5. 100% private model

This model is used when private companies buy the land, develop it, invest in infrastructure, and commercialize and operate the logistics platform. This does not necessarily imply that there is no public involvement. Sometimes government departments make prior investments (e.g. site preparation, connection infrastructure, off-site infrastructure) or put support schemes in place (e.g. incentives, recruitment and training subsidies).

Even if the public sector does not make any investments, it is still involved at regulatory level. This model is sometimes confused with a PPP. The main difference lies in the fact that the land in a PPP is normally public and the infrastructure returns to the state at the end of the concession period. In the 100% private model presented in this section, the land and buildings are always privately owned. Normally, only roads and other public infrastructure are owned by the corresponding authorities (municipal or regional authorities, etc.).

—Table 21: 100% private management model—

<table>
<thead>
<tr>
<th>Features</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private stakeholders bear all of the investment and operating costs and risks</td>
<td>Establish regulatory and planning (zoning) frameworks to prevent the uncontrolled establishment of small logistics platforms that do not create sufficient critical mass to support value-added services and involve other externalities (inappropriate roads and connections, congestion, damage to infrastructure, disturbances to residential areas, etc.)</td>
</tr>
<tr>
<td>A private management model makes it possible to increase responsiveness to market demands</td>
<td>In the case of large or singular platforms, establish mechanisms for coordination between public authorities and private developers to ensure that the proposed platform responds to shared objectives and strategies</td>
</tr>
<tr>
<td>Sometimes the objectives of private developments may conflict with the objectives pursued by the authorities as part of their logistics strategy</td>
<td>The public authorities must justify the non-standardized nature of “special zones” and ensure that the criteria and motivations that justify their creation are not altered over time</td>
</tr>
<tr>
<td>Government controls are normally based on standardized formulas: planning approvals, building permits, etc.</td>
<td></td>
</tr>
<tr>
<td>States sometimes establish perimeters with non-standardized regulations (such as special economic zones or priority development zones). These are subject to special exemptions, simplified “express” procedures, etc. However, in order to benefit from these advantages, the state may establish criteria for accepting or excluding companies interested in moving to the platform</td>
<td></td>
</tr>
</tbody>
</table>
Logistics platforms are characterized by extensive land needs, costly infrastructure and often low levels of profitability. Given all these factors, this model requires private partners with a medium- to long-term outlook

Special zones may also lead to a framework of unequal competition over conventional industrial parks. It is essential to avoid the proliferation of such special zones. See more about incentives and special regimes later in this section

3.5.5. Land provision formulas

Given the above, the provision of land from government departments can take many forms:
- Development of own land by a 100% public structure.
- Provision of land and concession contract to the developer as part of a PPP.
- Provision of land as a contribution to the equity to the share capital of the development company.
- Purchase of public land by the development company, whether private or public-private.

The value of the land may be based on real land prices or it may be subsidized, even with a symbolic value, in order to facilitate the feasibility of the project.

These formulas have different implications that will be discussed in detail later in this section.

Table 22: Examples of business models used for logistics areas in ports

- ZAL, Port of Barcelona (Spain). Developed through a PPP, with the port authority’s participation in the shareholding of the concessionaire.
- Distripark Botlek, Port of Rotterdam (Netherlands), direct development by the port authority (100% public).

Source of images: CILSA, Port of Rotterdam.

Table 23: Examples of business models: non-maritime intermodal platforms

- Sogaris, Rungis (France). 100% public company with participation of the local and regional authorities.
- CenterPoint Intermodal Center, Joliet (United States). 100% private development with public investment for preparation of the site.
3.5.6. List of issues to consider when choosing the business model

All the models described above, as well as hybrid forms, may result in the development of successful platforms in line with Logismed standards. Selecting the most appropriate formula depends on the starting conditions and a number of economic and institutional factors.

Choosing the structure for the developer is key to making logistics platforms a reality. To assist in this process, the following list of issues should be considered when choosing the structure for the logistics developer.

**Consistency with feasibility studies**
First of all, the model proposed for the LPD should be based on the technical analyses and recommendations included in the feasibility studies. When political, institutional or other elements are considered in the choice of business model, these elements should ideally not substantially alter the feasibility conditions.

**Open to all possibilities**
All potential management models should be considered. It is necessary to ensure that the preliminary studies do not justify just one predetermined choice from the start.

**Independence of special interests**
Decision-makers and the technical staff responsible for assessing the feasibility studies must ensure that the proposed models are not tainted by specific, sectoral or institutional interests.

**Balance between the public and private sectors**
It is important for the public sector to properly evaluate whether it has sufficient financial capacity to implement the project with the proposed model. It is also desirable for the promoting government departments to properly assess whether they have the technical capacity required to directly manage the project or to regulate and monitor the activities of private partners in case of public-private collaborations. This includes ensuring that public and private partners are on an equal footing to guarantee that the legitimate interests of both sides are treated in a balanced way.

**Stability throughout the process**
The proposed model should be assessed to ensure it will be stable throughout the process to implement the logistics platform and, if possible, throughout the medium- to long-term operational process. The internal instability of the LPD may delay or even obstruct the implementation of the project.
Provide logistics operators with added value
Finally, it is always necessary to ensure that the chosen model offers standards and services that stand out from the conventional logistics property available.

3.5.7. Creating the LPD

The choice of the institutional and business model for the LPD requires complex negotiations between all stakeholders. Decisions regarding the model, participants and their contributions to the LPD are normally set out in a memorandum of understanding between the stakeholders. These agreements must be reached following legal discussions, the adoption of internal agreements among the stakeholders and the mobilization of financial contributions and human resources to make the LPD operational. This process can take a long time. The usual steps taken during this process are illustrated in the following diagram.

![Diagram of the process to create the LPD]

The existence of an operational developer is key to ensuring that the projects move forward on the ground, as discussed above. Although this is not a hard-and-fast rule, it is recommended that the LPD be formally established and operational when the implementation phase begins.
CHAP. 4

IMPLEMENTATION PHASE
This phase begins with the creation of the LPD and ends after completion of the works and installation of the operators in the platform.

4.1. Launch of the LPD

4.1.1. Governance of the logistics developer

The recommendations regarding the governance framework for the LPD fall into two categories: coordination with ministries and supervisory bodies, and good internal governance practices.

4.1.1.1. Coordination with the supervisory authorities

This type of coordination is usually formalized through a framework contract or schedule of specifications that sets out the conditions to ensure that the project is consistent with the logistics strategy and overriding interests. A steering committee should be set up with the most significant stakeholders to monitor the project. This monitoring can be carried out at different levels:

- The strategic plan of the LPD.
- The business plan.
- Strategic operations (for example, with major anchor clients).
- The entry/exit of partners in the LPD.

It is important to ensure that the monitoring carried out by the supervisory authorities does not go so far as to make everyday decisions or impose excessive controls. Over-zealous control of the development company may force it to focus too much effort on satisfying its controllers and not enough on its potential clients and economic performance.

4.1.1.2. Recommendations for good governance

It is important not to confuse the nature and functions of the abovementioned steering committee with those of the LPD management board. As the body directly responsible for the business and economic performance, the management board must be made up of members representing the partners that contribute to the capital, as well as independent members.

The participation of independent members can help improve the quality of corporate governance and facilitate consensus between the different partners. If the independent members are from the logistics sector or are experts in the field, this is an additional advantage.

Since the development company may need to obtain funding from donors and financial markets, it should follow internationally verifiable governance rules such as:

- Ensuring that account audits are carried out by an independent body.
- Publishing audited financial statements and management reports.
- Adopting a code of conduct to prevent inappropriate business practices and corruption.
- Setting up transparent mechanisms for recruiting personnel that respect equal opportunities and professional merits.
- Selecting top management from prestigious professionals with experience in project management.
- Limiting political controls to the objective monitoring of the project’s consistency with the government’s general policies in the field of logistics.
- Adopting effective measures to prevent conflicts of interest between shareholders and operators (as logistics operators and as platform developers).
- Ensuring equality in terms of access to the platform for operators and avoiding unfair competition.
- Obtaining certificates based on international standards, such as ISO 9001 (quality) and ISO 14001 (environment).
4.1.2. Internal organization of the company

Two major lines of business in the activity of the LPD can be defined:

Activities as the developer (strictly speaking). These activities relate to the property market and include land acquisition, preparation of the layout, technical studies for infrastructure and buildings, land subdivision and commercialization. Development activity requires large sums of money to be mobilized before any revenue can be obtained.

In terms of human resources, platform development activities require the involvement of professionals, including engineers, architects, lawyers and sales professionals. There is also a greater need for technical professionals (architects, engineers, contractors, etc.) during the early stages of development and for sales and legal professionals during the later stages to prepare contracts with clients wishing to move to the platform. Good knowledge of the logistics sector is always an asset.

Operations activities. These are the activities associated with running the logistics platform once it is operational and the logistics companies have moved there. It is first necessary to focus on maintenance activities and community services, as in a condominium, then value-added services and services associated with the service centre. Finally, it is necessary to carry out control and authority activities to ensure compliance with the platform’s internal rules.

The human resources required at this stage are clearly different from those of the previous phase. From this point on, the staff required will mainly be administrative, maintenance and monitoring personnel.

The management activities will take place following completion of the technical work and the construction of the platform. Therefore, in theory, the two activity types could be assigned to different organizations.

However, the most usual process is that the organization responsible for development is then responsible for management. This requires that the LPD not be overstaffed during the development phase, especially with personnel who will not be necessary during the operational phase. For this reason, the LPD generally outsources studies and technical work to specialized companies.

In addition, it is necessary to consider the fact that revenues from property activities are irregular and heavily influenced by the market situation. Moreover, the services offered to the companies based in the logistics platform must be excellent and flexible, far from the bureaucratic culture that all too often occurs in the public sector. The size of the LPD team should be calculated so that the costs of the structure (personnel + fixed costs) can be financed by recurring revenues (rental income, fees, management and maintenance fees, etc.). Normally, a team of 10 to 15 people should be enough for the implementation phase of a medium-sized logistics project (around 30 to 40 ha). For the operational phase, a team of five to 10 people should be sufficient. This also depends on the level of outsourcing.

Despite the advantages of outsourcing non-critical activities to avoid creating overly burdensome structures, a situation all too common in the public sector, the logistics developer should learn how this business works to ensure its staff excels in logistics expertise.

An example organizational structure of the logistics developer is shown below:
Variations and hybrid versions of this organizational structure are always possible. Either way, the structure of the logistics developer must be sufficiently flexible and versatile to respond to unforeseen changes in the market at the start of the project.

As mentioned above, the expertise gained by the LPD during the development of the first platform project can very often be used to tackle other logistics platform projects.

4.2. Financial structure of the project

In order to implement the project, it is necessary to secure the financial resources required to acquire land, carry out technical studies and works, and cover the marketing and commercialization costs.

The main sources of project funding are:
- The funds contributed by the partners to the capital of the LPD (equity).
- Loans from public banks and multilateral financial institutions.
- Loans from private banks.

4.2.1. Implications of the business model and the commercial model for the financial structure

The financial structure has a strong relationship with the business model of the logistics developer and the commercialization model.

**Influence of the business model on the financial structure:**
- Models based primarily on private capital require a strong capital base to secure financing.
- Interest rates are usually lower for sovereign borrowers than private borrowers.
- Models based primarily on private capital may require a government guarantee to secure financing with favourable terms.

**Influence of the commercialization model on the financial structure:**
- If the option is to sell developed plots, the pay-back period will be shorter than when the option is to rent. Platforms where the commercial model is based on rental require long-term loans and will be hit harder by changes in interest rates.
If the logistics developer constructs buildings and warehouses, this requires a much greater investment than if it commercializes plots. In this case, the capital base and volume of funding must be much greater. Moreover, if the logistics developer decides to build everything and then rent everything instead of selling, it should mobilize a large amount of capital and financial resources and allow for a longer pay-back period.

The extent of the impact of these options on the pay-back period is illustrated in the figure below:

![Figure 26: Pay-back period according to the commercialization model (*)](image)

Very often, the commercialization model depends on the nature of the land and who owns it. For example, if it is on public land, there may be major restrictions on the sale of plots.

Basically, the nature of the land, the financial capacities of developers, the business model of the logistics developer and the land commercialization model are four fundamental and interrelated variables. The feasibility and success of the project depend, to a great extent, on finding a balanced, realistic combination of these four aspects.

4.2.2. Recommendations concerning financial structuring

The following are some recommendations for achieving a suitable and beneficial financial structure:

- The capital base of the LPD should be large enough so that it does not have to depend too much on changes in interest rates.
- In particular, buying land on credit is strongly discouraged. Loans secured against property mean that ownership of the land is transferred to the banks in the event of non-payment. This may lead to the project being halted and altered.
- Structuring the debt around the chosen commercialization model: medium term for the sales option and long term for the rental option.
- Properly assessing the project risks. Properly allocating risks to the most appropriate parties to control them. This helps secure access to funding and non-penalizing conditions.
- Analysing the possibility of securing guarantees with donors to cover certain project risks.
- Negotiating loans with grace periods for the entire design and construction stage.
- Dealing with the development and financial structuring in phases. This reduces the volume of exposure and helps secure loans.
- Seeking the support of donors such as the EIB, since this will add credibility to the project in the eyes of the financial sector.

The relationship between the costs of the “develop only” and “build everything” options can be between 1:2 and 1:4 depending on the price of undeveloped land and the development costs.
4.3. **Acquisition of land and other land-related aspects**

4.3.1. Why act in advance?

Logistics platforms are infrastructure facilities designed to consolidate and optimize the flow of goods. They therefore require land in strategic locations, close to major business hubs and well-connected to high-capacity roads. Unfortunately, such locations also appeal to numerous other sectors (offices, retail, etc.). Without land planning, the dynamics of the private property market mean that the land most suitable for the logistics sector is used for other business activities that are theoretically more profitable for owners and developers.

To avoid such problems, it is strongly recommended that logistics planning be carried out and that territorial development plans include strategic hubs. This will make it easier to reserve the land envisaged for these hubs, avoid its occupation and prevent opportunistic practices driving up land prices.

A complementary approach that can prove very useful is making selective purchases of part of the land, even at an early stage, and entering into land reservation contracts with landowners while the feasibility studies are under way. Otherwise, land that is already public, such as port and rail land, unused military land, common property, etc., is sometimes utilized.

It is crucial to have a plan aimed at reserving desirable land in order to prevent the project becoming infeasible (or limit undesirable developments), either due to high land prices or the lack of available land.

4.3.2. The impacts of land-related aspects on the project

There are four ways in which land-related aspects can impact the project:

**Impact on costs**

Land is one of the main components of the project cost. Land prices vary according to area and from one country to another. Nevertheless, the basic rule is that the price of undeveloped land may not be so high that developed plots cannot be sold at the same price or for less than those in private industrial and logistics areas.

Other than price, the land itself is another aspect that can influence the cost of the project. Indeed, delays in the availability of property may delay the implementation of the project and increase the financing costs, and the deadlines agreed with anchor clients may not be met.

**Impacts on the commercialization model**

As explained above, public land may entail a ban on selling and therefore involve a commercialization model based on temporary transfer formulas.

**Impacts on project management**

Land management at the beginning of a logistics platform project requires good knowledge of the rules and practices in the field of land intermediation. It is also an area that requires very high moral integrity from those responsible for these processes. The logistics developer must exercise great care when choosing the people and systems for monitoring these activities.

Furthermore, land management may require complex administrative and judicial processes, which involves the need for strong legal support.

**Impacts on the social acceptance of the project**

Finally, land management often has an important social dimension. It is sometimes necessary to manage the social problems associated with residents or activities that need to be relocated. The media can raise public awareness of these problems and encourage opposition to the project.
This may require the logistics developer to adopt a proactive communications policy in order to increase objectivity of the discussion and create appropriate communication channels to address the queries and uncertainties of the communities affected by the project.

4.3.3. Land processes to be carried out by the developer

Below is an indicative list of the land processes that must be addressed by the developer:

- Mapping the area of intervention. Topography.
- Definition of buildings, infrastructure, rights-of-way and land uses.
- Definition of owners. Definition of boundaries and land surface. Dealing with inaccuracies and defects in title deeds and registries.
- Proposal of price ranges for amicable purchase.
- Amicable acquisition of properties. Formalization of acquisitions and registration of land ownership in the registries.
- Creation of a relocation plan for affected residents and business activities. Multilateral banks such as the EIB and the World Bank have established methodologies for the development and implementation of these plans\(^9\).
- Payment of economic compensation.
- Legal steps for listing properties, land registries, land associations, etc.

4.3.4. Compulsory acquisition

Amicable acquisition is frequently impossible, so it is necessary to implement procedures for compulsory acquisition or expropriation. These are always complex processes that involve procedures and deadlines. These processes can result in administrative or court rulings relating to the claims of owners who oppose such action.

**Duties of the logistics developer in the compulsory acquisition process**

Expropriation is always the responsibility of the state. This duty may also be exercised by bodies delegated by the state, but not always by private companies or even publicly owned companies. When choosing the model for the LPD, its capacity to implement compulsory acquisition procedures should be addressed. The following options are possible:

- The state undertakes beforehand to acquire the land (amicably or by force) and provides the LPD with the land.
- The state grants the powers to carry out the compulsory acquisition to the LPD.
- The state bodies with the necessary powers expropriate in favour of the LPD.

**Other effects of expropriation**

Initiating expropriation proceedings can produce other effects, including:

- Increased risks. Expropriation authorities/courts are usually biased in favour of landowners.
- Additional restrictions. The expropriated land may involve restrictions on its subsequent commercialization, for example, a ban on selling, a ban on specific activities, etc.

The promoting authorities and logistics developers are therefore often reluctant to engage in expropriation processes. Nevertheless, it should be noted that without expropriation there would be no airports, ports or other infrastructure that requires extensive areas of land. As long as logistics platforms are considered strategic hubs for goods transport, it should always be possible to expropriate if necessary.

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4.3.5. Participation of private owners in the LPD

The participation of private owners in the LPD is an option for reducing the cost of land acquisition or avoiding expropriation. However, this is a formula that involves significant risks and challenges, including:

- Conflicts in the economic assessment of the contributed land.
- Clashes between the priorities of the owners (to maximize the value of land) and the priorities of the developer (to upgrade the logistics sector).

One option to avoid such conflicts is adopting a separate management model for each area, as described later in this section (business models).

4.4. Technical studies and land development plan

The technical studies and land development plans for the design and layout of the logistics platform are key steps because they determine the range of properties (type, size and features of plots and warehouses), the extent to which they meet the demands of logistics operators, the development costs (and thus rental or sales prices), and the needs in terms of maintenance of the infrastructure and facility on the site.

Management of the technical studies is sometimes delegated to one of the promoting authorities for the duration of the procedures to create and launch the LPD in order to avoid delaying the project. Although this is a fairly typical arrangement, it is advisable to follow the order proposed in the logical framework to ensure greater consistency and allow the LPD to handle all aspects of the project itself.

Nevertheless, the technical studies call for a multidisciplinary team of engineers, planners, environmentalists and experts in the field of logistics to identify the needs of operators and future clients of the platform. These technical tasks are usually outsourced to specialized consulting firms.

The key actions at this stage are listed below:

- Initiating and overseeing the studies required prior to the engineering and land development studies (geological and geotechnical, environmental, accessibility and mobility studies, etc.).
- Initiating and overseeing the land development and engineering works (Land Development Plan).
- Negotiating with the various competent authorities regarding their observations and trying to make them compatible with the project.
- Obtaining clearances and approvals from the various competent authorities at national, regional and local level.

4.4.1. Elements to include in the technical studies

The technical studies required for the development of a logistics platform (Land Development Plan) do not differ greatly from those needed for the development of an industrial park. However, it is necessary to take account of specific features to optimize the functionality of logistics platforms (as described in Section 6 of this Guide regarding road connections, design of functional areas and infrastructure and service networks).

The following table provides a guide to the elements to include in the Land Development Plan for a logistics platform.
Table 27: Indicative list of the contents of the technical development plan for a logistics platform

<table>
<thead>
<tr>
<th>Report</th>
<th>Plans</th>
<th>ToR for performance of the work</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Starting situation</td>
<td>· General situation and location (indicative scale 1:50,000)</td>
<td>· Purpose, scope and general provisions</td>
</tr>
<tr>
<td>· Topography</td>
<td>· Current land development plan (indicative scale 1:5,000)</td>
<td>· Technical specifications of the materials</td>
</tr>
<tr>
<td>· Geological and geotechnical features</td>
<td>· Overall plan (indicative scale 1:5,000)</td>
<td>· Description of the activities and criteria for performance of the works</td>
</tr>
<tr>
<td>· Roads</td>
<td>· Floor plans with topography (indicative scale 1:5,000)</td>
<td>· Mechanisms for supervising the works</td>
</tr>
<tr>
<td>· Railway (if applicable)</td>
<td>· Detailed floor plans (indicative scale 1:1,000)</td>
<td>· Health and safety measures during the works</td>
</tr>
<tr>
<td>· Earthworks</td>
<td>· Layout (indicative scale 1:1,000)</td>
<td>· Measures to ensure protection of the environment and mitigation of disturbances to residents</td>
</tr>
<tr>
<td>· Structures and walls</td>
<td>· Rail and intermodal infrastructure plan (if required)</td>
<td></td>
</tr>
<tr>
<td>· Paving and carriageways</td>
<td>· Longitudinal sections</td>
<td></td>
</tr>
<tr>
<td>· Signs</td>
<td>· Road type cross-sections</td>
<td></td>
</tr>
<tr>
<td>· Hydrology and drainage</td>
<td>· Cross profiles</td>
<td></td>
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<tr>
<td>· Wastewater disposal system</td>
<td>· Specific earthworks plans</td>
<td></td>
</tr>
<tr>
<td>· Power and lighting systems</td>
<td>· Structures and walls</td>
<td></td>
</tr>
<tr>
<td>· Telecommunications network</td>
<td>· Carriageway and paving plans</td>
<td></td>
</tr>
<tr>
<td>· Drinking water system, irrigation system for green spaces and fire protection system</td>
<td>· Sign plans</td>
<td></td>
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<tr>
<td>· Landscaping and street furniture</td>
<td>· Drainage plans</td>
<td></td>
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<tr>
<td>· Surveillance and security infrastructure</td>
<td>· Sanitation system plans</td>
<td></td>
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<tr>
<td>· Networks affected by the project (diversion, protection and safeguard zones, etc.)</td>
<td>· Power network plans</td>
<td></td>
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<tr>
<td>· Work plan</td>
<td>· Lighting plans</td>
<td></td>
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<tr>
<td>· Price substantiation</td>
<td>· Telecommunications network plans</td>
<td></td>
</tr>
<tr>
<td>· Work quality control plan</td>
<td>· Drinking water, irrigation and fire protection system plans</td>
<td></td>
</tr>
<tr>
<td>· Allocation of responsibilities associated with operating, maintaining and preserving infrastructure and networks</td>
<td>· Service coordination plans</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Budget</td>
</tr>
<tr>
<td></td>
<td></td>
<td>· Measures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>· Unit price tables</td>
</tr>
<tr>
<td></td>
<td></td>
<td>· Part budgets</td>
</tr>
<tr>
<td></td>
<td></td>
<td>· Budget by phases</td>
</tr>
<tr>
<td></td>
<td></td>
<td>· Total budget</td>
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<td></td>
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</tbody>
</table>

- Table 27: Indicative list of the contents of the technical development plan for a logistics platform.
4.4.2. Approval of the technical studies

Each country has its own procedures for approving land development plans. These are usually procedures that require a great deal of time, since they involve seeking and negotiating the agreement of many stakeholders.

The following table includes an indicative list of the approvals required for such projects.

—Table 28: Approvals required for the land development plan of a platform—

<table>
<thead>
<tr>
<th>Connections and infrastructure</th>
<th>Preservation of the territory and people</th>
<th>Local authorities</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Authorities responsible for national, regional and local roads</td>
<td>· Authority responsible for environmental protection</td>
<td>· Local authorities of the town where the platform is located</td>
</tr>
<tr>
<td>· Railway authority</td>
<td>· Authorities responsible for protecting the cultural, historic and archaeological heritage</td>
<td>· Neighbouring municipalities</td>
</tr>
<tr>
<td>· Port authorities (if applicable)</td>
<td>· Authorities responsible for public safety, industrial safety and/or civil protection</td>
<td>· Supra-local authorities (metropolitan, urban, regional, etc.)</td>
</tr>
<tr>
<td>· Civil aviation authorities (rights-of-way, aviation protection zones)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Authorities responsible for the water cycle and sanitation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Water company</td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Electricity companies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Telecommunications incumbents</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In order to ensure that the approval of the land development plan for the logistics platforms is not hindered by discussions and negotiations with sectoral or local stakeholders, some countries have classified such projects as having national relevance. This allows them to bypass some of the abovementioned procedures or ensure that the opposition or observations of a small number of stakeholders do not halt the whole project.

4.4.3. Recommendations for controlling risks during the technical study phase

While the technical studies and land development plan are being created and approved, the LPD must anticipate and, if necessary, control certain risks:

- Provide for extra costs resulting from studies that were not initially planned or whose scope must be extended.
- Ensure that the studies are outsourced to companies with proven experience in land development projects and also in the field of road infrastructure and, if applicable, railway infrastructure.
- The LPD must incorporate into its structure experienced technical staff responsible for monitoring and controlling the technical studies.
- Closely coordinate with the government departments in charge of creating the mandatory reports for approval in order to avoid delays.
- Negotiate with government departments and other stakeholders that impose restrictions or excessive costs that threaten the feasibility of the project.
- Be alert to sudden legislative changes that involve substantially changing the approach to the project.

4.5. Works

The land development works involved in a logistics platform do not differ greatly from those of an industrial park or other public works.
However, the responsibilities and risks associated with the construction phase are probably more important in terms of their impact on costs and the commissioning of the service. Thus, it is essential that:

A. The procedures for selecting the contractor make it possible to ensure its technical capabilities and obtain performance guarantees.

B. The developer has effective and reliable systems for monitoring and controlling the works, controlling plan deviations, dealing with unforeseen events (accidents, undetected geological features, etc.) and coordinating the works carried out by various contractors.

The following are some recommendations for ensuring that the works are performed properly:

- Strike a balance between technical and economic criteria when evaluating tenders.
- Ensure that bidders have experience in the implementation of industrial and logistics projects.
- Ensure that the division of responsibilities between the different partners in a consortium is clear.
- Do not commit to starting the works until all preliminary studies have been carried out and approvals obtained.
- Establish a project management system for the construction phase.
- Entrust the management and supervision of works to professionals with proven experience in such projects.

4.6. Commercialization

4.6.1. Commercialization models and their implications

There are two types of model for commercializing the spaces in a logistics platform: sale and temporary transfer (rental, leasing, concession, etc.). Some of the implications of these models for the structure and financing needs of the developer have already been discussed. Now some other implications for the business of the LPD will be addressed:

—Table 29: Comparison of the sales model versus the temporary transfer model—

<table>
<thead>
<tr>
<th>Sale</th>
<th>Temporary transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Less funding required</td>
<td>· More fixed assets and, therefore, more long-term financing needs</td>
</tr>
<tr>
<td>· A shorter pay-back period</td>
<td>· A longer pay-back period</td>
</tr>
<tr>
<td>· Commercialization is a temporary activity, with peaks during and at the end of works. The developer may decide not to create an internal commercialization structure and to outsource it to intermediation agencies</td>
<td>· Commercialization activities must be carried out over time. The developer usually creates an internal commercialization structure</td>
</tr>
<tr>
<td>· The company does not receive recurring revenues over time</td>
<td>· The developer receives a stable source of income over time</td>
</tr>
<tr>
<td>· More exposure to risks associated with the economic cycle and fluctuations in the property market</td>
<td>· Less exposure to risks associated with the economic cycle and fluctuations in the property market</td>
</tr>
<tr>
<td>· The developer loses ownership of developed plots and property assets that could provide security for loans</td>
<td>· The developer does not lose ownership of plots or fixed assets</td>
</tr>
<tr>
<td>· Once the plots/premises are sold, the promoter/administrator has less control over the activities and types of companies based in the platform</td>
<td>· The developer retains more control over the activities and types of companies based in the platform</td>
</tr>
<tr>
<td>· Less exposure to asset depreciation</td>
<td>· The developer retains responsibility for maintenance and repair of fixed assets</td>
</tr>
<tr>
<td></td>
<td>· The company must establish a sinking fund to address the depreciation of assets and repairs</td>
</tr>
</tbody>
</table>
It is always possible, and even common, to combine the two commercialization models in a logistics platform.

4.6.2. Considerations concerning the commercialization of buildings

The logistics developer may undertake to build warehouses for sale or rent to accommodate logistics operators. They may be single-client (occupied by a single operator) or multi-client (modular warehouses designed to accommodate several operators), with a wide range of modulation types.

It is increasingly common, especially among private developers, to opt for the “build to suit” model, i.e. tailor-made construction following the signing of a sale or medium-term rental contract with the operator.

As mentioned above, the construction of buildings, especially logistics warehouses, involves heavy investment that is not always available to public and semi-public logistics developers. Such developers must be very attentive to the costs and risks associated with the construction of warehouses.

4.6.3. Operator preferences

There is no universal rule regarding the preferences of operators in terms of the sale/rental of plots/warehouses. However, some of the factors that can influence client preferences are as follows:

- **Major international logistics operators.** These prefer renting built warehouses, especially in more mature logistics markets. Otherwise, they opt for “built to suit” agreements with logistics property developers and/or investment funds.
- **Medium-sized family-owned national operators.** These usually have a preference for purchasing assets, both plots and buildings.
- **Small operators and carriers.** Their limited financial capacity prevents them from purchasing and forces them to rent, preferably built units.
- **Maritime/airfreight operators.** Logistics operators with significant maritime or air operations are used to setting up on public land and are therefore more comfortable with commercialization models that do not involve purchase. By contrast, terrestrial operators are less used to such models.
- **Economic cycle.** There is a greater preference for buying during upward cycles because operators have greater economic capacity and banks are more willing to finance. By contrast, there is a greater preference for renting during downward cycles.

At any rate, market studies should be conducted to analyse in detail the preferences of operators in each market and the particular circumstances at the time.

Most logistics platforms, with the exception of those located on inalienable public land, include a combination of sale and rental and the commercialization of plots and warehouses. A fairly common approach is as follows:

- **Service centres (services for vehicles, companies and personnel, etc.)** continue to belong to the developer, but are temporarily transferred to the operators. This is because such activities have greater socioeconomic and sectoral interests, but their overall profitability as part of the platform is normally low.
- **Build some warehouses and sometimes the service centre at the start as a proactive way of attracting the interest of operators.**
- **Build some modular warehouses aimed at small operators as a proactive way of supporting the weakest segments of the logistics sector.**

---

Section 6 of this Guide also addresses warehouse types and their suitability to the different operators.
4.6.4. Pricing

Prices must be set in such a way that investments can be repaid and debts serviced. Public and semi-public logistics developers always have to contend with the risk that price ranges are set in accordance with political criteria that may threaten the solvency and viability of the LPD. These dangers are mitigated when the logistics developer is private or has substantial private sector participation. These risks are also reduced if a strong governance framework is established, as described later in this section.

Below are some recommendations regarding pricing, negotiations and any bargaining required before contracts are signed:

- Setting and modifying prices should always be based on objective criteria.
- Prices should reflect the reality of the industrial and logistics property market in the area where the logistics platform is located. These should be neither too high nor too low.
- Cross-subsidies between different areas in the platform are possible and even encouraged. Some of the less profitable areas (service areas, parking for large vehicles, container platforms, etc.) are precisely those that give the platform added value.
- Not all plots or warehouses are the same. Some are more attractive to clients than others. Prices must reflect these differences.
- Similarly, some operators are more valuable to the platform (target operators) than others. Establishing price ranges allows for leverage. It is important to be flexible to attract major operators (anchor operators).
- Cumbersome and/or overly bureaucratic commercialization procedures (tender and bidding procedures, etc.) should be avoided. These may discourage operators.

4.6.5. Safeguarding public interests

To safeguard public interests and prevent speculation and distortion of the platform, the developer sometimes establishes special restrictions on the sale of land or lots, such as:

- Obligation to build within a certain period of time in the event of plot purchase. A ban on successive sales before building.
- Limits on successive sales. Pre-emptive or redemption rights in favour of the developer.
- Selling only to final operators. Ban on sale to logistics property developers.
- Selection based on type of activity.

It is not possible to generalize about the benefits of applying such measures. However, logistics developers should consider the risk of distorting the objectives sought with the platform over the years if all or most of the plots and spaces in the platform are sold.
4.6.6. Proactive commercialization

The commercialization process requires a flexible and proactive sales team that will not only focus on applications from potential clients, but will seek out new clients and generate new applications by launching promotional projects. This may involve a significant challenge for public and semi-public logistics developers. The logistics developer must create a non-bureaucratic internal culture and attitude and promote flexibility and the launch of initiatives.

For the same reasons, it is advisable not to completely outsource the commercialization process to agencies specialized in intermediation in the property market. A mixed approach will take advantage of all available resources.

The commercialization process should start right after the decision to implement the platform. In fact, even beforehand, during the preliminary market studies, operators and potential clients are contacted to ascertain their demands and expectations.

The commercialization process proposed here goes beyond the mere marketing of logistics property products; it aims to develop and boost logistics projects. This implies a doubly proactive attitude and a greater effort than is usually required for private sector projects.

4.6.7. Steps and activities to be carried out during the commercialization process

The commercialization process involves two different steps.

4.6.7.1. Pre-commercialization phase

The logistics developer should conduct pre-commercialization activities before starting work. The pre-commercialization stage ends when the developer formalizes sale or rental contracts with clients.

Here are some of the activities to be carried out during the pre-commercialization stage:
• Refining and updating previously conducted market research.
• Drawing up a schedule in order to propose a deployment plan based on the demands identified.
• Highlighting the main advantages of the platform. Creating a concept and trademark that make the platform easily recognizable. Developing a marketing strategy.
• Targeting potential providers of the planned services and delivery models.
• Establishing guidelines for the platform's commercial model (sale/rental combinations, etc.).
• Proposing information activities within the logistics community to generate interest in the project.
• Establishing alliances with logistics infrastructure (ports, inland hubs, etc.) and other stakeholders, especially those that create opinion (whether or not favourable) about the project.
• Detecting driver projects and “anchor clients”.
• Designing brochures, websites, etc.

4.6.7.2. Commercialization phase

The commercialization phase usually starts at the same time as the works and ends when all plots and warehouses are occupied. Obviously, if the platform does not plan to sell plots, commercialization is an ongoing activity.

Key activities during this stage:
• Launch of marketing and dissemination plans.
• Proactive contact with key potential clients to increase awareness of the platform and the systematic follow-up of client files.
• Preparation of standard contracts tailored to the needs of the different clients.
• Establishment of target prices and bottom prices.
• National and international marketing campaigns.
• Launching of projects to boost demand.
• Negotiation of advantages for the first movers.
• Formalization of contracts with “anchor clients”.
• Negotiations with clients and conclusion of agreements.
• Systematic monitoring of the market to ensure that the commercialization activities are in line with industry trends.

As mentioned above, the key to the commercial success of the project is for potential clients to clearly perceive that the service is tailored to their operational needs, the price is competitive with other offers in the property market and the access conditions are simple, transparent and comprehensible to private operators.

4.6.8. Risks associated with commercialization

The commercialization process involves certain risks that must be anticipated and, if necessary, mitigated, such as those illustrated in the following table.

<table>
<thead>
<tr>
<th>Risks</th>
<th>Mitigation measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower than anticipated demand, resulting in lower revenue and a longer commercialization period</td>
<td>Regular updating of market research Proactive marketing and commercialization campaigns</td>
</tr>
<tr>
<td>Competition from other logistics areas requires reformulation of the business strategy</td>
<td>Regular analysis of the competition in the logistics and industrial property market and plans for new industrial parks Enhance the strengths and value proposition of the platform compared to those of competitors</td>
</tr>
<tr>
<td>Changes in the economic conditions that result in reduced demand</td>
<td>Revise commercialization models (e.g. increase rental options, make rental fees variable, offer a grace period)</td>
</tr>
<tr>
<td>Administrative or political criteria make the commercialization conditions unattractive to private operators</td>
<td>Implementation of more flexible commercialization procedures similar to those in the private property market</td>
</tr>
</tbody>
</table>

4.6.9. After-sales service

Logistics developers are advised to establish systems to monitor the satisfaction and demands of operators that have moved to the platform after the sale. This monitoring can form part of the platform operators’ activities that are addressed below in Section 5.

4.7. Incentives and other support measures

As mentioned above, logistics platforms are often part of a broader framework of measures to modernize and organize the transport and logistics sector. Thus, in addition to proactive commercialization, other incentives and support measures can be considered in order to promote the success of the platform. This section offers some possible measures in several areas.

4.7.1. Tax and price incentives

These incentives are designed to attract target operators through measures that reduce the installation or operational costs.
The following is a list of possible incentives to attract target operators:

- Tax exemptions for companies that move to the platform. Exemption from the taxes associated with installation and/or discounts on income taxes, property taxes, local taxes, etc.
- Discounts on rental rates during the early years of operation.
- Setting charges with a component that varies depending on the operator’s activities or profits.
- Offering favourable financing conditions for companies based in the platform by means of agreements with public or cooperative banks.
- Providing subsidized training for executives and personnel.

The drawback of incentives is that they distort the market and equal opportunities and may involve significant economic costs for the developer or the promoting authorities.

For that reason, an evaluation of the positive and negative economic impacts should always be carried out prior to implementation.

4.7.2. Special customs zones

Special customs zones (free trade zone or similar) are common in logistics platforms with high specialization in foreign trade. Such schemes can be applied to the entire platform or one part only. They require an enclosure that is controlled by the police and customs authorities, and strict control over the entry and exit of people and vehicles. They also involve significant operational costs. This makes them more common in or near port areas, but they are also possible elsewhere. Free trade zones sometimes attract not only logistics operators, but also industrial companies and even services, depending on the authorized activities.

Analysis is necessary in the preliminary studies to determine whether the activities associated with foreign trade will be significant enough to justify a special customs regime in all or part of the platform. Such regimes are not justified for terrestrial platforms with a national or metropolitan focus.

4.7.3. Other special regimes

Other special regimes may be considered. These are normally designed to attract foreign investment in the form of “special economic zones” and similar designations. Some possible measures are:

- Exemption from limits on foreign ownership for the companies based in the platform.
- Exemption from limits on the transfer of profits.
- Exemption from limits on recruiting foreign staff.
- Exemptions from employment, recruitment and social security legislation.
- Free imports and exemption from customs duties.
- Special tax framework (e.g. flat rates).

Such measures are not common in logistics platforms and are not key factors in attracting operators.

Figure 32: Example of a special economic zone: Bizerte business park (Tunisia)—

Source of images: the authors.
4.7.4. Single-window system and related measures

These measures aim to facilitate the establishment and activities of companies with respect to the paperwork required by the government in the corresponding country. For example:

- Establishing a single-window system to complete all paperwork, especially establishment procedures, company incorporation procedures, import/export procedures, recruitment support, finding partners, etc.
- Express procedures for permits and approvals (building permits, entry-into-operation certificates, etc.).

These services are highly valued by operators, especially foreign companies. To provide such services, the LPD must have dedicated human resources and agreements to have those functions delegated by the concerned government bodies.

4.7.5. Promotion of the demand by the public sector

The public sector can promote demand in the logistics platform in many ways. It is important for the promoting authorities to be committed to getting involved and for the LPD to serve as a catalyst. Here are some examples of such actions:

- Analyse the logistics activities of public companies and encourage them to carry them out in the platform.
- Encourage public companies such as the post office to set up their distribution centres in the platform.
- Encourage major hubs such as central markets and slaughterhouses to move to the platform.

4.7.6. Other accompanying measures

These are measures to facilitate the development of the platform together with other actions to help streamline and upgrade the logistics sector. Here are some examples:

- If the platform includes a parking area for heavy goods vehicles, introduce restrictions on parking for such vehicles in the urban areas when the platform is commissioned.
- A variation is to introduce restrictions on the movement of heavy goods vehicle in the urban area in order to encourage deconsolidation of goods for delivery to be carried out in the platform.
- Establish urban-wide restrictions on the implementation of large logistics warehouses outside specialized logistics zones.
- Provide rooms and training to companies and workers.

Such measures should not be applied without discussion and, if possible, consultation with the affected parties in order to minimize grievances and opposition to the platform.
CHAP. 5

OPERATIONAL PHASE
5.1. Roles and functions of the LPD during the operational phase

Once the works are complete and the operators have moved to the platform, the LPD enters the operational phase. At this stage, the focus of attention of the LPD shifts from property-related activities to services and operation of facilities. Nevertheless, when the platform is developed in phases, the development work (technical activities, works and commercial activities) can coexist with operational activities for several years.

The functions of the LPD during the operational phase are:
- Ensure that the platform’s communal infrastructure and facilities, such as roads, signs, lighting, green spaces, technical equipment (pumps, networks, surveillance, etc.) and community premises are maintained.
- Organize, or sometimes directly provide, basic services such as security, information, waste collection, etc.
- Organize, or sometimes directly provide, services for the companies, vehicles and employees based in the platform.
- Carry out promotional and communication actions.
- Act as administrator of the platform. This type of activity is similar to that of the administration of a condominium.
- Act as “trustee” of the platform. Establish internal rules of operation and good neighbourliness. Ensure compliance with these rules and, if necessary, apply corrections and penalties.
- Ensure that the areas under its ownership are occupied (warehouses for rent, premises and offices, large areas such as container depots, heavy goods vehicle parking areas, intermodal platforms, petrol stations, etc.).

5.2. Type of services and delivery models

Services are an essential component of a logistics platform and the range of services to be offered should be considered during both the infrastructure design phase (definition of the size, location, characteristics, etc.) and the management model design phase. For that reason, we have included the definition of the services to be offered, their business model and the type of structure for implementing them as a preliminary task in the implementation stage.

The services to be offered in the LPs are addressed in detail in Section 7 of this Guide.
These services can be provided in four possible ways:
- Provided directly by the LPD with its own personnel.
- Provided by the LPD through outsourcing.
- Provided indirectly by concessionaires under LPD monitoring.
- Provided by freely competing companies.

We will now analyse how well suited these management modes are to the proposed services.

### 5.2.1. Management of basic services

These services are essential for the operation of the platform. They are provided by the developer/administrator in most platforms. They may be provided directly or outsourced. The latter is the usual approach taken by most logistics platforms.

The benefits of internal management include more effective control over the service standards and a direct relationship between the LPD personnel and the companies based in the platform. However, direct management may become too bureaucratic in public and semi-public companies, or create overly burdensome structures. In the case of outsourcing, the centre administrator has more flexibility and can change the service provider if it fails to deliver.

There is no universal formula for finding the right balance between direct delivery and outsourcing. Nevertheless, the following table includes some criteria for choosing the model based on service types:

<table>
<thead>
<tr>
<th>Type of services</th>
<th>Delivery model (*)</th>
<th>Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>General administration of the centre</td>
<td>OP</td>
<td>Facilitates direct interaction between the LPD and the companies based in the platform</td>
</tr>
<tr>
<td>Ensuring compliance with the rules of operation and good neighbourliness. Arbitration and resolution of conflicts between companies</td>
<td>OP</td>
<td>These functions involve the exercise of authority, which is difficult to outsource. Thus, the LPD acts as an independent arbiter</td>
</tr>
<tr>
<td>Information, communication and promotion</td>
<td>OP-OS</td>
<td>This is part of the raison d'être of the LPD. Nevertheless, certain technical activities (e.g. maintenance of the website) may be outsourced</td>
</tr>
</tbody>
</table>

Source of images: the authors, Andalucía Logistics Network, CZFB.
### 5.2.2. Services to be provided under market conditions

These are non-mandatory services that can be provided efficiently by other companies under the monitoring of the LPD. These services include petrol stations, cafeterias and restaurants, and repair shops.

These services may be provided in plots, in premises belonging to the LPD (under a rental regime or concession) or in facilities owned by the service providers. In the first case, the LPD has more effective control over continuity, level of service and price. Thus, many logistics centre developers retain ownership of service areas so that they can monitor services more effectively in terms of diversity, quality and price. The LPD should ensure that the service delivery conditions allow for the highest possible level of competition to improve the quality and obtain better prices (thus avoiding cartels and captive markets).

### 5.2.3. More unprofitable strategic services

Some value-added services are not always profitable. Sometimes they are proactive services, the demand for which needs to be encouraged, or activities of a public nature (e.g. training and promotion activities, depots, a freight railway station).

Funding for such services often requires a combination of three sources of income:
- Contributions from users of the service. Sometimes the asking price only covers part of the actual costs.
- Government subsidies.
- Cross-subsidies from more profitable activities of the LPD.

The administrators of the LPD should ensure that such activities do not consume too many resources and thus jeopardize its current operations.

### 5.3. Business model during the operational phase

The business model during the operational phase must ensure the long-term sustainability of the LPD, if possible without regular government subsidies or neglecting the maintenance of infrastructure and facilities due to a lack of resources. The figure below summarizes the business model of the LPD at this stage.
As mentioned above, some revenue sources are recurring, such as fees, rental payments, maintenance charges, administrative fees charged to the companies based in the platform and fees for services. By contrast, some revenue sources are non-recurring in nature, including the sale of plots and capital subsidies.

To ensure long-term sustainability, the LPD must always ensure that the sum of the structural costs, the maintenance costs and the sinking fund for its own assets (rented warehouses and premises) are equal to or less than the sum of recurring revenues. This is a principle to bear in mind when designing the operational structure of the LPD. A practice that helps maintain this balance is separating property-related activities from service delivery activities in differentiated cost units.

The long-term balance of the LPD therefore requires a light, flexible structure; the service delivery model should also be clearly defined. To ensure flexible and effective management, especially in the case of majority public ownership, the following measures are recommended:

- Align the operations of the LPD with private company parameters to obtain economic performance that is consistent with public interest objectives.
- Avoid inflexibilities in relationships with clients (the logistics operators in the platform). Offer clients relationships similar to those found in the private sector, unburdened by bureaucratic practices.
- Respond quickly to changes in environment variables and market demands. Adjust the structure and economic and human resources to changing conditions.
- Create not only cost-control mechanisms, but also a true corporate culture based on austerity and efficiency.
- Commit to a culture of regular maintenance of assets and facilities that does not always exist in public bodies.
- Develop mechanisms to reward the workforce based on performance.
- Ensure a high level of confidence and solvency in the eyes of the financial system.
5.4. Relationship with operators, assessment and corrections

The business model of the LPD should be flexible during the life of the platform to respond to changes in the operators based there, changes in their demands and needs, and even changes in the competitive framework of the platform. Relations between the LPD personnel and the operators also help enrich its knowledge of the logistics sector and, therefore, the government's knowledge of the sector.

To establish good relations between the LPD and the operators and ensure a process of continuous improvement, the following steps are recommended:

- Together with the companies, establish rules of operation and good neighbourliness within the platform. Avoid extreme requirements.
- Approve a charter of commitments for the LPD with the companies based in the platform that formally establishes the service standards.
- Act with transparency when it comes to the fees (maintenance, administration, security, etc.) charged to the companies based in the platform.
- Avoid favouring some of the companies based in the platform over others.
- Organize meetings with the companies based in the platform (user committees).
- Establish a system for managing complaints and suggestions.
- Create a system of quantitative and qualitative indicators of the platform’s performance. Commit to regular assessment of the indicators and propose corrections if necessary.

During the operational phase, the LPD should focus on ensuring good communication with the companies and a mutually positive relationship. In view of their importance, the relationship with the companies based in the platform and the quality, performance and satisfaction indicators should ideally be monitored by the most senior authorities of the LPD (senior management or management board).

5.5. Environmental and social recommendations

Many logistics platforms have developed a social and environmental strategy. It is crucial to highlight the positive contributions that modern infrastructure can provide to the territory in which it is located and to make them as visible as possible.

In this context, logistics platforms offer many possibilities, including:

- Promoting the employment of groups with fewer opportunities (disabled people, untrained workers, long-term unemployed people, etc.), either through direct recruitment by the LPD or through promotional campaigns with the companies based in the platform.
- Promoting the employment of women. Policies that promote the employment of women include: flexible hours, family-support services (such as nursery schools), public transport and convenience shops.
- Promoting training. Free places for training activities, courses and seminars, dissemination actions, promotion of training within companies, etc.
- Promoting local recruitment. Of course, the recruitment of personnel by the companies based in a logistics platform cannot be controlled by the platform’s management organization, but dissemination actions can be carried out to increase awareness among local residents about job offers with the companies.
- Ensuring a good level of respectability and good neighbourliness with local public stakeholders and resident groups.
- Promoting safe driving programmes for carriers. Carrying out actions to promote cleaner vehicles.
- Committing to the development of environmental programmes and initiatives (creating renewable energy, reducing and recycling waste, promoting eco-efficient buildings, reducing the ecological footprint, etc.).
CHAP. 6

TECHNICAL FEATURES
OF LOGISTICS
PLATFORMS
This section defines the technical and functional characteristics that LPs must have. It includes recommendations concerning the functional framework of the LPs, general design criteria, a definition of the functional areas of the platforms, their road access and infrastructure, and environmental sustainability recommendations.

6.1. Logical framework for the functional definition of the LPs

The section outlines all the characteristics that define a project in functional terms, from the most general to those involved in a detailed project plan.

---Figure 36: Framework for the definition of the functional characteristics of an LP---

<table>
<thead>
<tr>
<th>General framework of the LP (6.3 &amp; 6.4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Location (macro and micro)</td>
</tr>
<tr>
<td>- Relationship to the surroundings</td>
</tr>
<tr>
<td>- Pre-sizing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Design of a platform (6.5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Structure</td>
</tr>
<tr>
<td>- Functional areas</td>
</tr>
<tr>
<td>- Road system and infrastructure</td>
</tr>
<tr>
<td>- Constraints associated with the domain of the platform</td>
</tr>
<tr>
<td>- Recommendations for the overall layout</td>
</tr>
</tbody>
</table>

Design of functional areas

- Logistics areas (6.7.1)
  - Types
  - Layout criteria
  - Layout variables
  - Availability of logistics warehouses
  - “Class-A” concept
  - Land planning parameters

- Service areas (6.7.2)
  - Units and composition
  - Dimensions
  - Service centre
  - Parking for large goods vehicles
  - Vehicle service centre
  - Container freight station

- Intermodal areas (6.7.3)
  - Commercial and operational constraints
  - Pre-sizing
  - Types of rail terminal
  - Design recommendations

Design of the access, road system and infrastructure

- Access (6.6)
  - Road access. Direct access
  - Rail access

- Road system (6.6)
  - Structure of roads
  - Dimensions
  - Arterial road system
  - Secondary road system

- Service infrastructure (6.8)
  - Water supply
  - Irrigation
  - Fire hydrants
  - Sanitation: stormwater
  - Sanitation: wastewater
  - Electrical power: medium and low voltage
  - Public lighting
  - Internal telecommunications
  - Gas
  - Services tunnels
  - Waste collection

Environmental sustainability in the LP design (6.9)
6.2. Functional definition process

The functional definition of a logistics platform must be carried out in three different phases in parallel with the legal and urban planning process defined by the laws of each country.

These three functional definition phases are as follows:

### Step 1. Strategic design

<table>
<thead>
<tr>
<th>Definition level and validity</th>
<th>Definition fields</th>
<th>Parallel process of urban, legal and sectoral planning</th>
</tr>
</thead>
</table>
| **Definition level**: macro-logistics planning | - Definition of strategic functions of the platform  
- Macro-location  
- Pre-sizing | - National and/or regional planning of the logistics platform system if this macro-planning figure exists |
| **Definition level**: Valid for starting the processes to plan specific platforms | | |

### Step 2. Functional design

<table>
<thead>
<tr>
<th>Definition level and validity</th>
<th>Definition fields</th>
<th>Parallel process of urban, legal and sectoral planning</th>
</tr>
</thead>
</table>
| **Definition level**: Master plan or functional diagram. May be supplemented with a pre-project summary (APS/PPS) | - Micro-location of the platform  
- Definition of functional areas  
- Calculation of the size of each functional area  
- Structure of the platform  
- Functional diagram, with phases  
- Definition of investments | - This usually has no direct connection to detailed urban planning  
- Its level may be adequate for inclusion in overall municipality planning |
| **Definition level**: Valid for platform prefeasibility decisions | | |

### Step 3. Detailed design

<table>
<thead>
<tr>
<th>Definition level and validity</th>
<th>Definition fields</th>
<th>Parallel process of urban, legal and sectoral planning</th>
</tr>
</thead>
</table>
| **Definition level**: detailed urban planning and detailed technical project | - Detailed urban planning  
- Detailed infrastructure plan (land development)  
- Detailed construction plans | - Urban development plan: partial plan or similar  
- Urban development plan to obtain building permits  
- Plans for constructing buildings to obtain construction permits |
| **Definition level**: Valid for starting the platform construction process | | |
6.3. Definition of location

6.3.1. Macro- and micro-location

In order to define the location of an LP, it is necessary to distinguish between two levels of decision-making: macro-location and micro-location.

<table>
<thead>
<tr>
<th>Macro-location</th>
<th>Micro-location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selection of the geographical area or extensive hub for the location of the platform within the context of a region or metropolitan area</td>
<td>Selection of the plot or specific land for the development of a platform within the macro-location hub</td>
</tr>
</tbody>
</table>

Source of images: the authors
### Table 39: Criteria for the macro-location of a logistics platform

<table>
<thead>
<tr>
<th>Selection of a territorial hub</th>
<th>Territorial hub: a specific regional or metropolitan area in a major communications hub, with the presence of logistics activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationship with planning regional or metropolitan logistics</td>
<td>Selecting the macro-location hub for an LP must be related to regional or metropolitan logistics planning, spatial planning and the prioritization of platforms at national level, if applicable</td>
</tr>
<tr>
<td>Logistics function of the different regional hubs</td>
<td>Each territorial hub has a certain macro-logistics function based on its position in the communication networks and infrastructure and the regional production and consumption areas</td>
</tr>
<tr>
<td>Territorial logistics concentration</td>
<td>It is important for sustainable planning to encourage logistics concentration in certain strategic areas of the region or metropolitan area and avoid “dispersed logistics”, which has a huge negative impact on the territory</td>
</tr>
<tr>
<td>Synergies with the environment</td>
<td>The anticipated synergies between the platform and the logistics/territorial orientation of the hub represent an important macro-location factor: ports, airports, new industrial park developments, etc.</td>
</tr>
<tr>
<td>Relationship between functional orientation and land prices</td>
<td>It is also important to consider the need for coherence between the functional orientation of the platform and the average land prices in the hub: for example, a regional distribution and storage platform can never afford to pay for a central location in a metropolitan area</td>
</tr>
</tbody>
</table>

---

### Figure 40: Relationship between the macro-location of an LP and its strategic functional orientation

![Graph showing the relationship between macro-location and functional orientation](image)
### Table 41: Criteria for the micro-location of a logistics platform

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Area available</strong></td>
<td>Dimensions of the land in relation to the pre-sizing calculations for the platform With respect to the size, it is important to have land available for future expansion</td>
</tr>
<tr>
<td><strong>Land development feasibility</strong></td>
<td>Development of the land for use as a logistics platform Where appropriate, land planning processes required to carry out a development with varying degrees of technical complexity and, more importantly, administrative complexity Identification of the legal instruments for the development of the project, such as partial plans and land development and building permits</td>
</tr>
<tr>
<td><strong>Environmental feasibility</strong></td>
<td>Environmental risks for the land: protected areas, reserves, flood risks, etc.</td>
</tr>
<tr>
<td><strong>Physical characteristics of the land</strong></td>
<td>Shape of the land: how regular it is, the potential to optimize it Topography of the land: level of horizontality, possibility of terraces or platforms Geotechnical features of the land: construction and infrastructure limitations</td>
</tr>
<tr>
<td><strong>Rights-of-way and pre-existing conditions</strong></td>
<td>Rights-of-way: power lines, overhead lines, underground channels and conduits, aeronautical rights-of-way, etc. Pre-existing conditions: homes, occupation by economic activities, encroachment, etc.</td>
</tr>
<tr>
<td><strong>Micro-accessibility</strong></td>
<td>Possibility of connections to the regional and urban high-capacity road system and the associated technical and administrative complexity Possibility of a direct rail connection in the platform or close to the land</td>
</tr>
<tr>
<td><strong>Connections to services</strong></td>
<td>The level of complexity of connecting to external services: water supply, sanitation and sewage, power lines, etc.</td>
</tr>
<tr>
<td><strong>Land management</strong></td>
<td>Legal situation and ownership of the land. Public or private land Form of land acquisition: purchase, transfer or acquisition of the land via expropriation If applicable, problems associated with negotiating with the owners (public or private). Number of owners</td>
</tr>
<tr>
<td><strong>Land prices</strong></td>
<td>Preliminary assessment of the average market price of the land</td>
</tr>
<tr>
<td><strong>Social and territorial effects</strong></td>
<td>Future synergies of the platform with nearby projects and developments: other logistics or industrial areas, ports, airports, etc.</td>
</tr>
</tbody>
</table>

As a practical guideline, it is advisable to start with an inventory of readily available land for the development of an LP (public land, private land, etc.).

As a rule of thumb, the best platform is not the one that is theoretically most suitable, but the one that is feasible within a reasonable time frame.
6.3.2. Relationship between the platform and its surroundings

In general, the land development framework for a logistics platform defines the conditions for integrating the platform within its environment: compatibility of functions and activities, accessibility, relationship between heights, distances, environmental conditions, etc.

Moreover, market analyses of the platform should take account of environmental factors that may affect the design of the service. Competing industrial parks and nearby services should also be considered.

To produce the final layout of a platform, it is always useful to consider specific environmental factors, especially those that facilitate its integration, such as:
- The characteristics of the urban fabric of the area: morphology, size, etc.
- The most important landscape-related factors: Continuity and discontinuity with the platform.
- Creating a barrier with activities in the surrounding area: the need for screens or embankments to block noise and visual intrusions.

6.4. Platform size

There is no standardized reference point: the recommended minimum is 25 to 30 hectares (to be developed in phases), but larger developments may reach up to 100 hectares.

It is generally recommended that space be included for future expansion, when the land management conditions permit it.

Sizing an LP must always be based on market studies and experience in developing similar projects.

If the market of the relevant city is not mature and consolidated, sizing should be based on real demand in the first phases, and medium- and long-term development should be flexible and done in phases.

Pre-sizing a platform is always a complex process: there are insufficient analyses of international standards, and it is often necessary to resort to basic information on the logistics warehouses in a city or the annual uptake of warehouses, and thus set an uptake quota for the new platform. Although these processes are not very reliable, they are the most commonly used method for pre-sizing platforms.

This pre-sizing can be based on two criteria:
- **The size of the logistics hinterland (production and population)**. Pre-sizing standards such as those based on a specific number of square metres of logistics space per million inhabitants have not been sufficiently analysed or confirmed, but references can be found among European projects in terms of the level of logistics development.
- **The volume of goods processed at the platform**. If a reference point for the volume of goods that could be processed by a platform every year was obtained through analytical planning, the following simplified formula could be used for the pre-sizing of platforms:

\[
\text{Gross area of the platform (in ha)} = \frac{T \text{ (amount of traffic estimated for the platform, in millions of t/year)}}{100} \times \frac{1}{K \text{ (average t/m}^2\text{)}}
\]

Values for K:
- Average value: \( K = 3.5 \text{ t/m}^2 \) (gross)
- Value based on a platform with high turnaround: \( K = 4.5 \text{ t/m}^2 \) (gross)
- Value based on a platform with low turnaround: \( K = 2 \text{ t/m}^2 \) (gross)
As an additional reference, below is a table that shows the pre-sizing process used for the German GVZs.

—Table 42: Technical characteristics of the German logistics platforms—

<table>
<thead>
<tr>
<th>Functional area</th>
<th>Theoretical surface area</th>
<th>Reference variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Transhipment area</td>
<td>21.5 m²/t</td>
<td>Daily tonnage received</td>
</tr>
<tr>
<td>2 General storage</td>
<td>8 m²/t</td>
<td>Daily tonnage received and shipped</td>
</tr>
<tr>
<td>3 Special storage</td>
<td>20,000-60,000 m²</td>
<td>—</td>
</tr>
<tr>
<td>4 a) Vehicle parking</td>
<td>15 m²/t</td>
<td>Daily tonnage received and shipped</td>
</tr>
<tr>
<td>b) Private freight clearance area</td>
<td>10,000 m²</td>
<td></td>
</tr>
<tr>
<td>5 Social and administrative facilities</td>
<td>0.8 m²/t</td>
<td>Daily tonnage received and shipped</td>
</tr>
<tr>
<td>6 Service area</td>
<td>3 m²/t</td>
<td>Daily tonnage received and shipped</td>
</tr>
</tbody>
</table>

Subtotal: Areas 1 to 6: 21.5 m²/t (received) + 26.8 m²/t (received and shipped) + 30,000 m² to 70,000 m²

<table>
<thead>
<tr>
<th>Functional area</th>
<th>Reference variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 Vehicle movement area</td>
<td>15% of the total of areas 1 to 6</td>
</tr>
</tbody>
</table>

Subtotal: Areas 1 to 7: 24.7 m²/t (received) + 30.8 m²/t (received and shipped) + 34,500 m² to 80,500 m²

<table>
<thead>
<tr>
<th>Functional area</th>
<th>Reference variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 Green spaces</td>
<td>10% of the previous subtotal</td>
</tr>
</tbody>
</table>

TOTAL 27.2 m²/t (received) + 33.9 m² (received and shipped) + 37,950 m² to 88,550 m²


6.5. Layout of the logistics platform
6.5.1. Introduction

The overall layout of a logistics platform should always aim for transport flow optimization. This means that the organization of the functional areas and the structure and features of the internal routes and connections are key elements for the platform layout plan.

It is therefore necessary to consider the following key aspects when designing a logistics platform:

- General layout criteria.
- Structure of the functional layout.
- Limitations associated with the platform space and effects on the functional design.

6.5.2. General criteria for the layout of an LP

The following table contains a summary of the basic general criteria for the layout of a logistics platform.
### Table 43: General criteria for the layout of an LP

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Functionality</strong></td>
<td>All layout aspects must be adapted to the specific functional needs of the LP users (transport and logistics companies):</td>
</tr>
<tr>
<td></td>
<td>· Conditions of the roads built for the easy movement of vehicles: dimensions, tight bends, gradients, etc.</td>
</tr>
<tr>
<td></td>
<td>· Turning and parking areas</td>
</tr>
<tr>
<td></td>
<td>· Intermodal connections</td>
</tr>
<tr>
<td></td>
<td>· Logistics building areas</td>
</tr>
<tr>
<td></td>
<td>· Security and control requirements</td>
</tr>
<tr>
<td></td>
<td>· Etc.</td>
</tr>
<tr>
<td><strong>Flexibility</strong></td>
<td>Flexibility is a key requirement for layout, since it allows the platform to be adapted to any future changes that may arise in the sector and in the process to promote, market and operate the LPs</td>
</tr>
<tr>
<td></td>
<td>This flexibility is based on a set of fundamental sub-criteria:</td>
</tr>
<tr>
<td></td>
<td>· The superblock as the basic layout unit (See 6.7.1.3)</td>
</tr>
<tr>
<td></td>
<td>· The potential to change functions, with consideration for the initial priorities at all times. It is essential that a superblock can be arranged in several ways in the future</td>
</tr>
<tr>
<td><strong>Utilization of space</strong></td>
<td>Efforts must be made to optimize the layout, while respecting the functionality criteria, by attempting to obtain operating ratios that maximize the viability of the LP:</td>
</tr>
<tr>
<td></td>
<td>· Avoid under-using spaces</td>
</tr>
<tr>
<td></td>
<td>· Optimize open and green spaces to positively impact the landscape</td>
</tr>
<tr>
<td></td>
<td>· Maximize special areas for urban services or flexible design functions</td>
</tr>
<tr>
<td></td>
<td>· Prioritize spaces that offer multiple options</td>
</tr>
<tr>
<td><strong>Regularity</strong></td>
<td>Logistics activities require level areas. If the land has a slight gradient:</td>
</tr>
<tr>
<td></td>
<td>· Provision of platforms or terraces with an average gradient of about 2% each</td>
</tr>
<tr>
<td></td>
<td>· Preferable layout using superblocks that are rectangular or similar in order to avoid odd features and shapes that are difficult to use (triangular, curved and irregular superblocks, etc.)</td>
</tr>
<tr>
<td><strong>Modularity</strong></td>
<td>The LPs must be arranged in a modular way so that they can be developed in phases at all levels, and they must have areas reserved for future expansion, in line with modularity criteria at all times, if possible</td>
</tr>
<tr>
<td><strong>Governability</strong></td>
<td>The LPs must not be designed in a way that is inconsistent with the future governance and operation standards. The following two aspects must always be taken into account:</td>
</tr>
<tr>
<td></td>
<td>· Security and control conditions, which must always take a flexible approach and take account of the platform's future evolution</td>
</tr>
<tr>
<td></td>
<td>· The divisibility of the LPs into separate units to explore and promote operational activities with varying degrees of autonomy: intermodal areas, service areas, specialized logistics parks, private clients, etc.</td>
</tr>
<tr>
<td><strong>Marketability</strong></td>
<td>A platform should also be designed with the best commercial profit in mind, especially when it comes to the most visible areas and façades, by having the functions that are most representative most likely to maximize the business potential</td>
</tr>
</tbody>
</table>

### 6.5.3. Structure of the functional layout of the LPs

There are two different plans or levels in the process to design an LP:
- The overall design plan of the LP.
- And the design plan for each of the internal functional areas.

With respect to the first plan, concerning the LP as a whole, it is necessary to consider the basic elements of the general structure of a logistics platform.
The functional areas are the business activities carried out in an LP, and are more or less standard in terms of the functions and the way they are promoted. The functional areas must be connected by the general systems. There are three functional area types in an LP:

- Logistics areas
- Service areas
- Intermodal areas

These structure the layout of the entire LP and help define the activities of the functional areas. They are key in terms of their form and function, since they help shape the unique “landscape” of an LP compared to a conventional industrial park. There are two major systems:

- The arterial, high-capacity, collector–distributor road system of the LP
- The system of open spaces (green spaces) in the LP

Source of images: the authors.

6.5.4. Limitations associated with the platform space

The main limitations to be considered when designing a logistics platform are as follows:

<table>
<thead>
<tr>
<th>Limitation</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-existing conditions and their corresponding rights-of-way</td>
<td>Constructions, activities and networks on the land</td>
</tr>
<tr>
<td>Geological and geotechnical conditions</td>
<td>Limitations in terms of buildings and infrastructure</td>
</tr>
<tr>
<td>High-voltage power lines</td>
<td>These occur frequently and strongly influence the design stage: logistics activities beneath power lines can only be provisional and of low intensity (roads, parking) and the uniformity of the layout is hugely affected. If possible, they should be diverted and/or corrected and, if appropriate, buried.</td>
</tr>
<tr>
<td>Risk of flooding</td>
<td>This is often a feature of areas close to rivers. It is necessary to carry out risk of flooding analyses before planning a platform, because it represents a major limitation in terms of the location and design</td>
</tr>
<tr>
<td>Archaeological environmental and social conditions</td>
<td>Dependent on the regulations in each city and country</td>
</tr>
<tr>
<td>Spills and waste</td>
<td>Areas likely to be used for the development of platforms are often tailings areas that have recently been subject to uncontrolled spills and waste that need to be identified and cleaned up</td>
</tr>
<tr>
<td>Other restrictions</td>
<td>Airport restrictions, required minimum distances in relation to other infrastructure (roads, railways, rights-of-way, etc.)</td>
</tr>
</tbody>
</table>
6.5.5. Additional recommendations for the general layout of a platform

Below are some additional recommendations for the general layout of a platform and some examples depicting them:

- LPs should have a main entrance, and platforms of a certain size (e.g. platforms over 40-50 ha) should have a second, emergency access point.

—Figure 46: Example of main entrance—

Example: Main entrance to CIM Vallès (Barcelona, Spain)

- Service areas should have a relatively independent location in the LP, preferably in the entrance, so that it can operate 24 hours a day, independently from the rest of the LP.

—Figure 47: Example of service area—

Example: Service area with direct access to a high-capacity road (Pamplona Transport Centre, Spain)

- Intermodal areas may be incorporated into logistics areas or function separately and independently, with their own access point.
6.6. Access and road system

6.6.1. External road connections

- An LP must have a direct connection to the high-capacity road network of the region or metropolitan area. This should be as close as possible. The connection to the high-capacity network should be a maximum of 5 km away.
- Direct connections to cloverleaf intersections are, in most cases, neither possible nor advisable, because these would have a negative impact on the traffic in such interchanges. Separate access from the traffic in the cloverleaf intersection is preferable.
• Signs indicating the entrance to the LP, either from the high-capacity system or via direct access roads, must be clear and legible. It is advisable to hold negotiations with the road authorities so that they grant LPs the same priority as ports and airports.
• In terms of direct access, a single access point is recommended for LPs, as well as a secondary, emergency access point for platforms of a certain size (for example, above 40-50 ha). This secondary entrance would normally be kept closed. Having numerous access points in an LP reduces the surveillance and security level. In cases of dual access, it is essential to ensure that the surrounding traffic does not use it as a bypass.
• As an exception, LPs made up of clearly separated, independent functional areas can also have a separate access point (for example, agribusiness platforms with integrated logistics areas).
• When the motorway that provides access to the platform has tolls, and in metropolitan areas outside toll-exemption zones, it is important to analyse the LP's location and connections to ensure that companies' operating costs are optimized with respect to their journeys by motorway.
• The financing and implementation of road connections to LPs generally represent a key aspect in platform development. These access points are often funded with non-refundable grants from road authorities. Negotiations are always complex and must be tackled well in advance.

6.6.2. Access gate

• It is always advisable to design an extensive access area to enable controls to be carried out in the LP (access gate).
• Access control should be carried out using multiple reversible lanes. These should be automatic and large enough to prevent bottlenecks at the logistics platform entrance and exit. The number of lanes should be determined based on the control system and transit times.
• Ample waiting areas should be provided for trucks before the access gate in order to give them the opportunity to return or bypass the platform in special cases.
• The location of the access gate: this should preferably be at the entrance to the logistics and intermodal areas, so that service areas are not subject to controls.

—Figure 50: Example of an access gate: Free Trade Zone, Cartagena, Colombia—

6.6.3. Rail access

Rail access to an LP, when intermodality is to be included, is always a highly complex matter, especially from an administrative and management point of view. This must be addressed from the moment planning begins.

11 Generally, a track that connects to the main track.
To plan an LP with rail intermodality, there are two approaches to location:

- **Bring the track to the platform.** This is an option when the location is planned in advance, even though the rail link is often very difficult to manage.
- **Or bring the platform to the track.** In other words, place the platforms at critical points on the existing railway network, sometimes on land owned by the rail operators. If the location is suitable, this option is often preferred over the former.

The critical question generally revolves around who will finance this link:

- In general, railways transport operates with very small margins and thus its capacity to bear infrastructure costs is severely limited. This means that the cost of connections and the financing of intermodal terminals and their connections are always a problem to be overcome. The options for financing rail connections are as follows.
  - The competent railways authority, normally the central government.
  - Rail companies, public or private.
  - The promoters/developers of the platform.

---Figure 51: Example of rail access to a logistics platform (Cargo Center Graz, Austria)---

### 6.6.4. Internal road system of the LPs

For an LP, internal mobility is one of the keys to its success and one of the factors that sets it apart from conventional industrial parks. This mobility must be guaranteed by the internal road structure.

It is important for an LP’s internal road system to have a hierarchical structure consisting of an arterial network and a secondary network.

#### 6.6.4.1. Arterial network

This is the main access and distribution road system in the LP. It forms the backbone of the LP’s layout.

Its route and layout are key to the functioning of the platform. This road system facilitates movement and distribution, at a relatively fluid speed, and does not allow turning or provide direct access to facilities. It is therefore important to avoid:

- Parking of trucks and light vehicles directly on the carriageway. Parking areas must be either within each plot or in areas that are separated from the general road system.
- Direct access to plots and facilities. Access must be from the secondary, manoeuvring road system. This is key to preventing traffic interruptions on arterial roads.
- Left turns should be facilitated by means of roundabouts.

This system may have a grid or branched structure.
6.6.4.2. Secondary network

This is made up of lanes for turning and local roads that provide access to the plots, as well as closure or perimeter roads.

These internal road networks branch off the arterial road network and provide capillary access to all plots and facilities in the LP.

It is important for this road system to allow access and manoeuvres. Permission to park depends on the specific circumstances of each case:

- **Local roads**: these are one- or two-way, single-carriageway secondary roads that provide access to plots.
- **Manoeuvring roads**: these are roads that provide access to the manoeuvring areas of the logistics warehouses. They are frequently congested by heavy goods vehicles turning and manoeuvring.
- **Perimeter roads**: these are roads for closing the road to the plots and are generally designed for light vehicles to park.

6.6.4.3. Dimensions of the road system

**General terms**

The dimensions of the road system are dependent on the national or local land development regulations corresponding to each LP (sometimes there are rules concerning road systems in industrial parks) and on the mobility features and requirements of the heavy goods vehicles authorized in the corresponding country.

Generally speaking, the percentage of surface area dedicated to roads in an LP is around 15% to 20%. It may be higher if the platform has high logistics turnaround.

Each lane should have a recommended width of 3.5 m to 3.75 m to allow the fluid movement of vehicles.

Two-way roads should have a width of 7 m to 7.5 m.

**Dimensions of the arterial road system**

The arterial road system should always have two lanes in each direction, with a central reservation of 4 m if possible to allow for left-turn lanes if necessary.

These roads should not have lay-bys on the carriageway.

In terms of the size of pavements, this depends on the criteria of each platform. Pavements measuring less than 5 m are not recommended for this type of road system. Larger platforms sometimes have wider areas on pavements.

**Dimensions of the secondary road system**

The carriageway should have at least two lanes, whether the road is one or two way.

If there are pavements, their size should be much more functional. The recommended width is 3 m, if possible.
6.6.4.4. Junctions and turns in the road system

Roundabouts that are sufficiently large to allow heavy goods vehicles to turn easily are recommended at the main junctions in the arterial network. Roundabouts should have an outside radius greater than 25 m.

Junctions in the secondary network can be direct.

If possible, it is advisable to prevent left turns from the carriageways of the arterial road system and facilitate directional changes at roundabouts. If this is not possible, a lane should be available to turn through the central reservation.

6.6.4.5. Other recommendations for the layout of the road system

**Altimetry mapping and gradients**

- In logistics areas, the layout and function of roads require an almost horizontal longitudinal profile to avoid height differences with turning areas.
- In terms of the other road sections, the altimetry mapping must be adapted to the requirements of heavy goods vehicles. Excessive gradients (greater than 3% or 3.5%) should be avoided.
Thus, logistics areas should be virtually horizontal or constructed in terraces, with links between them. Service areas are more suited to more complex topographies.

**Signs**
- In order to prevent bottlenecks, it is crucial to have clear naming rules for the road system in an LP and signs should be located at key points on the road network.

**Paving**
- It is recommended that carriageways have sections for heavy traffic and areas for manoeuvring.
- The recommended surface for traffic lanes is asphalt, or flexible or mixed bitumen.
- Parking and turning areas should be paved with mass concrete, paving stones or slabs that are more resistant to the effects of static loads and fuel and oil leaks. The materials and cross-sections normally used in each country should be used for pavements.

6.6.5. Parking areas

**Heavy goods vehicles**
LPs generally require appropriate parking areas and areas for waiting trucks: a main supervised parking area in the service area and a reserve zone in the main manoeuvring areas.

However, the parking of trucks on the roads must always be avoided: trucks must park in service areas or inside each user’s space (including manoeuvring areas). Parking and waiting on roads always compromises traffic and safety.

**Light vehicles**
It is also essential to have an adequate number of places for light vehicles, not only in line with communal rules, but also to ensure that unauthorized parking does not cause bottlenecks on the roads.
- These parking areas are generally located either within the plots of warehouses in the logistics area, or in areas outside the road system: warehouses without turning areas in front, car parks in special areas, etc.
- Wherever possible, parking directly on the roads in LPs should be avoided.

—Figure 54: Example of parking areas for light and heavy goods vehicles (Córdoba Transport Centre, Spain)—

*Source of image: Red Logística de Andalucía*
6.7. Design of functional areas

This section addresses the design recommendations for the three functional area types that make up an LP:
• Logistics areas.
• Service areas.
• Intermodal areas.

6.7.1. Design of logistics areas
6.7.1.1. Logistics areas: the foundation of LPs

The logistics area of an LP is the area where goods handling activities are carried out, and transport, storage, handling and distribution companies are based. There may be restrictions on productive activities in logistics areas, but value-added logistics services may be offered.

6.7.1.2. Types of logistics areas

Broadly speaking, there are two logistics area types in terms of the activities carried out:
• Intensive logistics areas: areas dominated by activities carried out in warehouses, normally associated with general goods.
• Extensive logistics areas: areas dominated by logistics activities carried out in large areas or grounds: open-air bulk cargo, cars, construction materials, etc.

6.7.1.3. Basic criteria for the development of logistics areas.

Flexibility in the layout
• A general key requirement for LPs as a whole, flexibility is crucial for logistics areas.
• The best way to ensure that logistics areas are flexible is to arrange them by means of superblocks.

The concept of superblocks

Most platforms have short-term demand forecasts, but medium- and long-term demand is much harder to predict. This makes it essential to offer a flexible and versatile layout in logistics areas so that the changes that will inevitably occur over the course of the process to promote, market and operate the platform can be incorporated.

A particularly suitable option is to use superblocks as the internal layout unit. Having a flexible layout in a logistics platform makes it possible to present different variations depending on the functional demand and the required lot sizes, and employ the most favourable solutions.

A superblock is a basic layout macro-unit for warehouses. It has an average size of around 4 to 5 ha and a regular, rectangular shape. Its dimensions allow it to be subdivided in a range of different ways in order to:
• Achieve a flexible, modular arrangement.
• Change its function and the activities carried out within it.

The internal layout possibilities of a superblock are highly diverse: it can be used for a single client or to obtain a layout that features modular warehouses and shared turning areas. It can also be used for a wide range of subdivision and layout options with integrated warehouses.
Specialized or multi-purpose?
This question is frequently posed in platforms: should logistics areas be organized by sub-activity type and/or supply chain, or should they be multi-purpose, without specialized areas?

In general, we recommend that they are multi-purpose and flexible. Logistics types and activities can be combined in a functional way without any major problems (even in modular warehouses) and a multi-purpose approach undeniably favours the marketing process and development of the platform.

Platforms should have specialized logistics areas only in specific cases, for commercial rather than functional reasons. These include clusters that allow clients to associate with companies in the same field (food logistics, temperature-controlled logistics, construction logistics, etc.).

Logistics areas: multi-business or major operators?
LPs are areas that are primarily designed to accommodate a wide range of companies. Operators with large logistics bases normally have the resources to establish such centres independently, outside platforms.
Sometimes these large bases are incorporated into platforms for functional and commercial reasons. In such cases, it is possible to manage the base independently from the platform as a whole.
A wide range of options in logistics areas

Logistics areas must offer a wide range of options that meet the needs of as many of the logistics operators in the market as possible, in terms of different activities (indoor storage, cross-docking, value-added services, etc.) and degrees of maturity and development.

Layout and security

Logistics areas require the greatest level of security in the LP, so they should be set up as enclosures that are subject to controls and closed to the general public. This aspect should be taken into consideration from the very start of the planning process.

6.7.1.4. Variations in the layout of logistics areas

LPs may include superblocks with two basic layouts:

- **Multiple plot superblocks**, designed as closed units, with operations carried out inside.
- **Integrated warehouse superblocks** that share turning areas.

On this basis, superblocks can be arranged in two ways:

---Table 56: Superblock layout types---

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Layout type 1: warehouses with offices on individual plots</td>
<td>This layout addresses the most conventional and widespread request for medium-sized and large companies that want a storage facility with a small percentage of representative and operations offices, with their respective variants</td>
<td><img src="image1.jpg" alt="Image" /></td>
</tr>
<tr>
<td></td>
<td>It combines the need to create a closed security area and maintain a nice façade facing the public road system that provides access to each plot</td>
<td><img src="image2.jpg" alt="Image" /></td>
</tr>
<tr>
<td></td>
<td>We would advise against establishing small logistics plots (less than 5,000 m²) in the LPs, and would recommend directing requests from smaller companies to integrated modular warehouses</td>
<td><img src="image3.jpg" alt="Image" /></td>
</tr>
<tr>
<td>Layout type 2: warehouses with offices in integrated warehouses</td>
<td>This is the type that generally maximizes the potential of an LP</td>
<td><img src="image4.jpg" alt="Image" /></td>
</tr>
<tr>
<td></td>
<td>It is intended for operators whose demands are small or medium-sized and flexible, and who can share handling spaces and roads within a large warehouse made up of different storage modules</td>
<td><img src="image5.jpg" alt="Image" /></td>
</tr>
<tr>
<td></td>
<td>This layout is based on modular warehouses with an open turning area at the front, mezzanine offices and parking areas. Together they make up an integrated block</td>
<td><img src="image6.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>
### 6.7.1.5. Integrated warehouse types

Three integrated warehouse types for logistics activities are recommended for the LPs. See table below:

---Table 57: Integrated warehouse types---

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
</table>
| **Type 2A: integrated warehouses for high-turnaround activities** | These are warehouses designed to facilitate the turnaround of goods. They are intended for parcel transportation activities, partial loads and cross-docking | · Average depth of less than 45-50 m.  
· The layout should be as open as possible, with a minimum number of columns to allow forklifts to move around inside  
· In general, with loading and unloading on two façades, a maximum number of doors and raised loading docks on the façade  
· Clear height of warehouse: to facilitate long-term flexible marketing, it is usual to adopt clear heights of up to 7 or 10 m.  
· Mezzanine offices are generally located along virtually the entire length or part of the façade  
· Sometimes there are loading docks on the two main façades to facilitate turnaround |
| **Type 2B: integrated warehouses for low-turnaround activities** | These are very deep, very high warehouses designed for maximum long-term storage capacity | · Depth of warehouse: around 100 m, always in accordance with the fire regulations of each country. Deeper warehouses require more sophisticated fire protection systems, which make them more expensive  
· Inside, they have a dispatch area for handling, consolidation and deconsolidation, measuring 20-30 m in depth  
· The clear height inside is generally 12-13 m. However, given the growing number of automatic warehouses, the demand for greater heights is increasing  
· They normally have openings on one façade with raised loading docks for loading and unloading, with offices located on some parts of the façade or in a mezzanine  
The standard commercial modulation is generally between 2,000 and 2,500 m² of warehouse per module and warehouses are usually between 15,000 and 20,000 m² in total |
Type 2C: integrated warehouses with multi-purpose modules

The two types described above are aimed at general logistics activities, but in most of the LPs in developing countries, it is highly recommended to include a third multi-purpose type, aimed at small and medium-sized clients, including logistics operators and companies that have their own loads and carry out different activities, but have not yet achieved a high degree of logistics expertise.

- These are warehouses with 500-1,000 m² modules that can be grouped together.
- Each module has a minimum façade of 12-15 m.
- They may have raised or level loading docks so that vehicles can enter directly.
- The recommended clear height is 10-12 m in order to accommodate consolidation and deconsolidation activities and long-term storage.

This kind of demand, which often represents a very important segment of the local market, should always be directed towards integrated modular warehouses and no single warehouses for each operator, which often results in a poor-quality platform.

Source: the authors

6.7.1.6. Warehouse quality in the LPs: the “Class-A” concept

The quality of the warehouses generally recommended for an LP is equivalent to “Class A”, i.e. the maximum market standard in terms of functionality.

In most developing countries, the presence of Class-A warehouses is a very recent development, and there are still too few of them. Encouraging this type of competitive infrastructure in new logistics platforms is desirable. They should always be combined with more affordable standards, especially for small and medium-sized businesses.

Although there are no unified international market standards regarding the Class-A category, and implementing such warehouses is highly dependent on the culture of each country, the table below includes the recommended features for achieving this level. These can be adapted to each specific situation.

**Recommended features for a Class-A logistics warehouse**

- Minimum clear height of 10 m.
- Platform with hydraulic lift and height of 1.2 m.
- Number of loading docks: A minimum of 1 loading dock for every 1,000 m² of warehouse.
- Truck manœuvring area of at least 32 m (in case of exclusive turning area) and 50 m (for shared areas).
- Land with a load capacity of 5 t/m², planimetry type TR34FM2.
- Fire protection with NFPA- or F-compliant fire sprinkler system.
- Natural lighting of over 4%.
- Indoor fluorescent or LED lighting with a minimum of 150 lux.
- Concrete area to support trucks.
- Roof: flat, ideally with membrane.
- Insulation: non-flammable, stone wool.
- Security booth at the entrance to the enclosure (in the case of warehouses on independent plots).
- Building frame measuring a minimum of 12 x 24 m (distance between columns).
- Area for order preparation (20 m), free of columns.
- Battery-charging facility.
- Offices with changing area and showers for workers.
- Compliant with the regulations in force in each country.
6.7.1.7. Complementary recommendations for modular warehouses in integrated buildings

**Size and type of manoeuvring areas:**

These are turning areas for trucks to allow them to load and unload in logistics facilities. In integrated warehouses, there are two types of turning areas:

—Table 58: Types of manoeuvring areas in integrated warehouses—

<table>
<thead>
<tr>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Manoeuvring areas for the exclusive use of each operator.</strong></td>
<td><img src="image1.jpg" alt="Example" /></td>
</tr>
<tr>
<td>These are areas measuring 30-35 m in total, with a docking area for trucks of up 18-20 m and a traffic lane. They also include an area for parking on the side opposite the front of the warehouse. This type of exclusive-use area is recommended for long, low-turnaround warehouses.</td>
<td></td>
</tr>
<tr>
<td><strong>Shared manoeuvring areas between two parallel warehouses.</strong></td>
<td><img src="image2.jpg" alt="Example" /></td>
</tr>
<tr>
<td>These are large areas measuring 45-55 m in length, between two parallel warehouses that share the same central traffic lane, each with an area of 18-20 m for docking vehicles. This solution requires operators to coordinate their movements, but it is often useful in such platforms and is particularly recommended for warehouses aimed at medium-sized operators. This solution optimizes the occupation and performance of logistics areas.</td>
<td></td>
</tr>
</tbody>
</table>

**Loading docks, ramps, platforms and elevated platforms**

- Loading docks are always level with the front or sometimes set back from the interior.
- They may include platforms for levelling loading and unloading activities according to the individual demands of each client.
- They may include internal or external ramps. The latter are implemented using façade modules.
- In terms of clear height, standard loading docks have a height of between 1.1 and 1.2 m, although if there are specific requests, it may be possible to install loading docks with varying heights, pier docks or special features. For vans, the usual height is 0.9 m.

**Gradient of manoeuvring areas**

It is recommended that manoeuvring areas are slightly inclined towards the road drainage.

The surface of manoeuvring areas can be above or below the natural ground level, or a combination (often used to compensate for settling of the land). Trucks should, however, be as horizontal as possible in order to facilitate loading and unloading operations and prevent accidents occurring during operations.

—Figure 59: Example of turning area below ground level (Zona Franca del Pacífico, Colombia)—

Source of images: the authors
**Operations offices in logistics warehouses**

- Warehouses can have offices on one or two mezzanines. This capacity exceeds the expected average demand of 10% to 20% of floor space.
- In large warehouses, offices can be incorporated into specific locations such as the corners or middle of the façade.
- In the case of single warehouses, offices are always representative and may reflect a particular image.

—Figure 60: Example of mezzanine offices in an integrated warehouse (Prologis Maasvlakte, The Netherlands)—

As a standard calculation, a loading dock should be envisaged for every 500-1,000 m² of warehouse, but warehouses with high turnaround generally require loading docks along the whole façade, or even along the two main façades (e.g. couriers).

—Figure 61: Examples of loading docks in logistics warehouses—

<table>
<thead>
<tr>
<th>Loading docks at 90°</th>
<th>Loading docks at 45°, an ineffective solution</th>
</tr>
</thead>
</table>

Source of images: the authors

6.7.1.8. Summary of land planning parameters for logistics areas

As a general rule, the following planning parameters are recommended for the LPs.
- Minimum plot: 5,000 m². Requests for smaller plots should be directed towards integrated modular warehouses.
- Minimum width of the block for integrated modular warehouses: not less than 120 m.
- Theoretical NFA: 0.7 to 0.75 m²/m² of plot. Real NFA: barely exceeding 0.5 m²/m².
- Maximum height: around 15 m. Greater heights are possible in the case of special automated builds.
- Recommended setbacks: 10 m with respect to the edge of plots. This distance also allows for emergency access.
- Car parking standards: 1 place for 100 m² to 120 m² of construction. This standard may be reduced depending on the density of offices and the car ownership levels in each country.

In cases where these parameters do not comply with planning rules, retaining them is strongly recommended if possible.
6.7.2. Design of service areas
6.7.2.1. Importance of service areas

The service centre is generally considered the most valuable and representative area of a logistics platform. The quality and level of services represent the quality and level of the platform as a whole. The size, layout and design must be addressed very carefully.

6.7.2.2. Layout of service areas

The service area may be made up of four unit groups.

—Table 62: Units and composition of the service area—

<table>
<thead>
<tr>
<th>Group of services</th>
<th>Possible service units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated service centre</td>
<td>· Administrative area&lt;br&gt;· Logistics and transport company offices and business centre&lt;br&gt;· Restaurant and hotel services&lt;br&gt;· Complementary commercial services&lt;br&gt;· Social, religious services, etc.</td>
</tr>
<tr>
<td>Vehicle service centre</td>
<td>· Fuel station&lt;br&gt;· Parking for heavy goods vehicles&lt;br&gt;· Repair shops&lt;br&gt;· Technical vehicle inspection services</td>
</tr>
<tr>
<td>Container services (container freight station)</td>
<td>· Container platform&lt;br&gt;· Container consolidation and deconsolidation facilities&lt;br&gt;· Container repair shops and services&lt;br&gt;· Empty container depot</td>
</tr>
<tr>
<td>Customs and foreign trade services</td>
<td>· Customs and customs-related offices&lt;br&gt;· Tax inspection facility</td>
</tr>
</tbody>
</table>

6.7.2.3. Dimensions of the service area

The overall size of the service area depends to a large extent on the rank of the logistics platform and its overall size.

The following two tables show the overall pre-sizing criteria proposed for the service area of an LP and the size criteria for the various functional areas.

—Table 63: Indicative criteria for pre-sizing the service area in an LP—

<table>
<thead>
<tr>
<th>Rank and size of the LP (total gross ha)</th>
<th>Gross size of the platform (ha)</th>
<th>Pre-sizing of the service area (total gross ha) without customs services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small platforms</td>
<td>Area less than 20 ha</td>
<td>2.5 to 3.5 ha</td>
</tr>
<tr>
<td>Medium-sized platforms</td>
<td>Area between 20 and 40 ha</td>
<td>5 to 7 ha</td>
</tr>
<tr>
<td>Large platforms</td>
<td>Area above 40 ha</td>
<td>Around 15%, and no more than 10 to 12 ha</td>
</tr>
</tbody>
</table>
101

<table>
<thead>
<tr>
<th>Service unit</th>
<th>Small platforms</th>
<th>Medium-sized platforms</th>
<th>Large platforms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Size of land (m²)</td>
<td>Constructions (m²)</td>
<td>Size of land (m²)</td>
</tr>
<tr>
<td>Integrated service centre</td>
<td>2,000–4,000</td>
<td>1,000–2,000</td>
<td>5,000–8,000</td>
</tr>
<tr>
<td>Parking for heavy goods vehicles</td>
<td>6,250–12,500 (50-100 places)</td>
<td>12,500–20,000 (100–200 places)</td>
<td>20,000–30,000 (200–300 places)</td>
</tr>
<tr>
<td>The rest of the vehicle service centre</td>
<td>4,500–8,000</td>
<td>1,000–2,000</td>
<td>10,500–16,500</td>
</tr>
<tr>
<td>Container services</td>
<td>10,000</td>
<td>1,000–1,500</td>
<td>20,000</td>
</tr>
<tr>
<td>Customs services</td>
<td>Dependent on the government requirements of each country</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal roads</td>
<td>Variable, 10% of the gross area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total (except customs services)</td>
<td>25,000–38,000</td>
<td>3,000–6,500</td>
<td>53,000–71,000</td>
</tr>
</tbody>
</table>

6.7.2.4. Layout of service areas

The service area includes units, at least some of which must remain open 24 hours a day and be accessible not only to users and clients of the platform, but also to residents in the area, passing trade and clients based near the platform.

Therefore, the best location for the service area is at the entrance to the platform so that users can gain access without having to undergo the control and security checks required for the rest of the platform.

Inside, the different units should be arranged in line with a number of criteria designed to optimize operations:

- **External access**: it is important that users can access the area quickly and directly.
- **The commercial value of the façade**: the services should be located in an area that is visible from outside, in order to advertise it and attract potential users.
- **Functional relationship between the different facilities in the service area**: in other words, the degree of dependence between services. There may be no dependence, they may be complementary or they may be dependent on each other.
- **Groups of business units**: the joint management of two or more services sometimes involves a spatial relationship between them. It is therefore necessary to assess the possibility of creating units for the proposed services.
- **Adaptation to the topography**: the design of the service area facilities must take into account any topographic irregularities.

6.7.2.5. Design of the integrated service centre

It should have a relatively autonomous design and be located in a different area to give it a certain degree of representativeness.

The design should be integrated to promote the links between the different functions and activities, and it should have high standards of quality without the need for high levels of representation. Platforms should start with an initial module of central services.
The inclusion of hotels always depends on the local market situation and the location of the platform in relation to the city. In all cases, it is important for hotels to represent an appropriate price-quality ratio for providing services to drivers.

---Table 65: Examples of service centres---

<table>
<thead>
<tr>
<th>Brucargo (Belgium)</th>
<th>Nuremberg GVZ (Germany)</th>
</tr>
</thead>
</table>

Source of images: Brucargo Air Freight, Bayernhafen GmbH.

6.7.2.6. Design of parking areas for heavy goods vehicles

It is important to identify the parking needs of heavy goods vehicles. The sector’s actual response to a new supply of such services depends on many factors, including traffic restrictions in cities, the price of the service and ease of connection for drivers. The design must be based on a preliminary process to engage carrier associations concerning the dimensions and operating regime.

A modular and flexible design is recommended, with places for directly entering and exiting at 45-degree angles, in large areas with places marked by simple signs on the ground to allow future changes to be made. In subsequent phases, the parking area could be made denser with places that require manoeuvres to enter and exit. This would increase the occupancy rate. A concrete surface is recommended, since it is more resistant to static loads.

---Figure 66: Integrated parking in a logistics platform (Seville transport centre, Spain)---

Source of image: Red Logística de Andalucía

Modular designs allow parking areas to be developed gradually while testing the actual response of the sector to the parking services offered. It avoids the risk of oversizing, especially during the early phases.
Parking areas must be subject to 24-hour surveillance, have a large main entrance and toilet facilities for drivers.

In some cases, the parking area can be designed alongside the container area of the container freight station in order to increase the flexibility of the overall design.

6.7.2.7. Design of the rest of the vehicle service centre

**Petrol station:** The stations available in the area surrounding the platform should be analysed in order to assess the dimensions of the petrol station. It is normally located at the platform’s exit so that vehicles can fill up before they start their return journey.

**Technical vehicle inspection services:** these should be included in platforms if the country’s regulations allow it.

**Vehicle repair shops and services:** for non-resident vehicles, the most basic repair shop service required by passing vehicles will be proposed. Sometimes, repair shops associated with technical inspection services may also be required.

6.7.2.8. Design of container services (container freight station, CFS)

In many cities and metropolitan areas, especially in developing countries, the container service is necessary, regardless of whether or not the platform has rail or port intermodality.

A CFS has specialized facilities for containers, with a separate area for temporary storage, and brings together warehouses for goods consolidation and deconsolidation, offices and auxiliary workshops:
- **Container storage area:** The area is divided into different zones: an area with full export containers, an area with empty containers and an area with a power supply for refrigerated containers.
- **Consolidation areas:** with a loading dock for the consolidation and deconsolidation of containers on one side and loading docks for loading and unloading trucks on the other side.
- **Equipment for stacking and moving:** reach stackers, straddle carriers, stacker cranes, etc.
- **Offices to accommodate the collective administration and management staff.**
- **Specific facilities for cleaning, disinfecting and repairing empty containers so that they can be reused rapidly in commercial networks.**

Container depots require vast areas of land and generally have low profitability. Their inclusion in platforms depends on whether or not there are other spaces for containers in the surrounding area. They can also be designed in parallel with parking areas for heavy goods vehicles so that the development of both elements can be adjusted in a modular, coordinated manner. They may be separated by a fence that could be modified in line with needs.

6.7.3. Design of intermodal areas

6.7.3.1. Commercial and operational conditions

The detailed functional layout of an intermodal area in a logistics platform depends primarily on the commercial and functional requirements of the rail operators that run the platform’s intermodal facilities.

Its design must therefore correspond to decisions regarding its operation and functioning and should adhere to the following process:

- **Step 1: Determine the functional and commercial needs of the potential operators of the intermodal area and clients of the associated logistics area:**
  - Analyse the international goods flows to or from the functional environment of the LP.
  - Supply of rail transport services.
• **Step 2: Define the operational model of the intermodal area:**
  - The functional and operational design depends on the model that is finally adopted: profile of the concessionaire, size of trains, type of operations, logistics, etc.

• **Step 3: Detailed layout of the intermodal area:**
  - Rail macro-accessibility and connection to the main line.
  - Internal road structure and road access.
  - Internal rail structure. Boundaries of rail terminals.
  - Degree of flexibility in the development of the intermodal area and phases.
  - Internal facilities.

6.7.3.2. Pre-sizing of the intermodal area:

Although the dimensions of the intermodal area depend on the operating model, the following table contains guidelines regarding its overall dimensions based on expected traffic levels.

—Table 67: Pre-sizing of the intermodal container terminal—

<table>
<thead>
<tr>
<th>Functional activity</th>
<th>Terminal with low traffic volumes (2-5 trains a day)</th>
<th>Terminal with high traffic volumes (up to 15-20 trains a day)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipping/receiving sidings and depot</td>
<td>8,000 m² of land</td>
<td>12,500 m² of land</td>
<td>Dimensions depend on the number of tracks required for traffic</td>
</tr>
<tr>
<td>Line for truck traffic</td>
<td>7,000 m² of land</td>
<td>15,500 m² of land</td>
<td>Area for trucks to enter and exit to carry out transhipment activities</td>
</tr>
<tr>
<td>Container stacking areas</td>
<td>4,500–8,000 m² of land</td>
<td>5,000–10,500 m² of land</td>
<td>Surface area for storage of full and empty containers. The area occupied depends on the height of stacks (normally 2 or 3 full containers and a maximum of 6 empty containers)</td>
</tr>
<tr>
<td>Total intermodal terminal</td>
<td>19,500–23,000 m² of land</td>
<td>33,000–38,500 m² of land</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Study on the development of logistics activity areas in the Spanish port system (SPIM)*

6.7.3.3. Freight rail terminal types

A logistics platform may have three area types for intermodal terminals:

6.7.3.3.1. Intermodal container terminals

This is the most common type in intermodal logistics platforms in developed countries.

**Functional structure**

- **Rail area:** with all tracks or sidings that facilitate access and classification of trains to the terminal and sidings for shipping and receiving, loading and parking loaded and empty materials.

- **Area for loading and unloading at the side of the railway:** area for container transhipment, area for storing loaded and empty containers, container maintenance workshop, gantry crane, etc.

- **Area for loading and unloading at the side of the road:** access to these areas by road, commercial management building, weighbridge, building for auxiliary companies (transport, subsidiaries, etc.).

- **Services:** management and administration, auxiliary companies, container maintenance workshop, hazardous goods, etc.

**Types of container terminals**

Depending on their relationship to the rail network, there are two types:
• **Through-traffic terminals.** These have entrances and exits at both ends. They are the most functional type, but they can only be built on very flat land and parallel to the traffic lane.

• **Single-ended terminals.** These have entrances and exits at one end only, which limits their operability.

—Figure 68: Example of an intermodal container terminal (Dourges, France)—

6.7.3.3.2. Specialized non-containerized load terminals

These are terminals for the transportation of cars, steel products, solid and liquid bulk, fertilizers and minerals, each with a specific design.

They are not normally included in logistics platforms. In some cases, land has been reserved in areas accessible by rail in order to develop them in the future if necessary.

**Functional structure**

• Rail area: with all tracks or sidings that facilitate access and classification of trains to the terminal.
• Area for loading and unloading at the side of the railway and road, depending on the type of loads handled in the terminal.

6.7.3.3.3. Dedicated terminals

Plots with direct rail access for logistics operators or load owners. Designed for logistics activities related to general non-containerized goods (steel, machinery, electrical appliances, etc.). These plots also have road access.

In a logistics platform, they may form part of the logistics area, in superblocks and with rail access, although they are not normally included in platforms.

—Figure 69: Example of specialized and dedicated terminals—

| Example of a specialized non-containerized load terminal (Automotive logistics centre in La Llagosta, Spain) | Example of a dedicated terminal: warehouses with rail access (Eurocentre, Toulouse, France) |

*Source of images: Adif, the authors.*
6.7.3.4. Some recommendations for the design of intermodal container terminals in the LPs

- Road access to the terminal, as direct as possible, is recommended within the platform, whether exclusive or through the arterial road system. It must have a large entrance area with parking areas for waiting trucks.
- The total length depends on the criteria of the operating company. Terminals may be long (for full trains) or short (for split convoys). The terminal must be able to accommodate the longest trains in circulation. In Europe, trains are up to 750 m long.
- We recommend a modular design that allows it to be developed in phases.
- Recommended gradients:
  - Access sidings: maximum 12‰
  - Load and unloading area: very flat, without requiring complete horizontality.

6.8. Service infrastructure in a logistics platform

6.8.1. Introduction

This section addresses the public utilities normally required for logistics platforms:

- Water supply system.
- Irrigation network.
- Fire hydrant system.
- Sanitation: storm drain system.
- Sanitation: wastewater disposal system.
- Electrical power network: medium and low voltage.
- Public lighting network.
- Internal telecommunications network.
- Gas network.
- Installation of services tunnels or buried ducts in logistics platforms.
- Collection of waste from the logistics platform.

6.8.2. Water supply system

The design of the water supply system in an LP, whether the platform collects the water from its own sources or is connected to an external or internal distribution network, is strictly dependent on the regulations of each country and, within those, the requirements and conditions of the local supply companies. However, below are some general recommendations concerning the layout of this system.

In general, the water supply requirements of a logistics platform are significantly lower than those of industrial parks that undertake complex transformation processes. They tend to be similar to those of residential areas.

**Supply system**

For a platform to guarantee the water supply, whether it collects the water itself or is connected to a supply network, it requires the capacity to guarantee its average consumption over 12 hours, as a minimum. This capacity should be separate from the water required for other purposes (fire protection and sprinkler systems) in the case of combined installations.

In the event that the supply network cannot guarantee the quality of water, a treatment station for pre-treatment, coagulation, flocculation, sedimentation and disinfection is required.

**Recommendations for the design of the distribution network**

*Design parameters:*

The standard calculations are determined by the water supply company. However, we propose the following parameters for calculating the network:
• Average consumption per day: 0.5 l/s/ha
• Maximum consumption coefficient: 3
• Consumption coefficient: 0.6 m/s < V < 3 m/s
• Minimum design pressure: 4 bar

Structure of the system:
• The system should be designed in a grid pattern, preferably with cast-iron pipes.
• An angular ring that allows for alternative supplies is recommended.
• The maximum length of a non-gridded branch is 300 m. The grid should be made up of arteries with maximum separation of 900 and 250 m.
• Recommended diameters of pipes is 100 mm in the angular network.

6.8.3. Irrigation network

The existence of a fixed irrigation network with infrastructure in an LP depends on the practices and standards of each country (irrigation from a fixed network or via tank trucks).

If there is a fixed infrastructure network, this should be separate from the LP’s water supply.

Recommended features
• A polyethylene network is recommended, with pipes with a minimum diameter of around 80 mm in the main sections.
• Network structure: branched, non-gridded.
• Isolation from the water supply network by means of a key to cut off the supply. The irrigation network may also be supplied by means of water collection and the drinking water system by connection to the external network.
• If rainfall is not sporadic, tanks should be installed to collect storm water that can then be used for irrigation.

6.8.4. Fire hydrant system

Fire protection measures are paramount in logistics platforms. The options depend primarily on three factors:
• The regulations of each country, which are generally determined by the requirements of the firefighting services in each municipality.
• Whether or not the platform has a pressurized water supply guaranteed by the supply companies.
• The requirements of insurance companies in terms of fire protection systems in logistics warehouses. These requirements are placing increasing demands on operators.

Based on the above, there are different options for installing a fire protection system in a logistics platform:
• Widespread fire hydrants in the platform and on its road system, connected to the water supply network.
• Fire hydrants connected to the platform’s own water system, separate from the water supply network, complemented by equipment to enhance water pressure in order to adequately access all points of the platform. This system is expensive and often not accepted by the insurance companies as the only system.
• Supplement or replace the abovementioned system with internal systems in each warehouse, with their own fire sprinkler systems. If the external network cannot guarantee the flow and pressure required, the internal facility should have corresponding deposit systems and its own pumps.

There is a widespread global trend towards the installation of fire sprinkler systems in each warehouse, in accordance with the increasing internal safety requirements of warehouses. If possible, it should be supplemented with a comprehensive fire hydrant system on the public road system.
Recommendations for the layout of the fire hydrant system

- To implement a fire hydrant system, it is necessary to have a layout that allows a maximum flow rate with strong pressure, which generally requires a tank with pumps.
- The system must supply water to two fire hydrants separated by a maximum distance of 200 m and placed in the most suitable location, for two hours and with a minimum pressure of 50 to 70 mwc.
- A fire hydrant should be available every 80 m of façade or every 1 ha of the platform.
- The system should be separate from the water supply and irrigation systems and should have a grid structure.
- Pipes should be made of cast iron, with a minimum diameter of around 150 mm.
- The supply tank should have the capacity to supply 100% of the water required in such situations.

6.8.5. Sanitation: storm drain system

The design of the storm drain system is critical for many logistics platforms, given the high level of paved surfaces compared to the situation prior to construction of the platform.

It is generally recommended that the layout of the storm drain system is separate from the platform's general wastewater disposal system.

In order to implement the storm drain system, experience is key and the decisions of the competent local authorities in this field are crucial.

Some recommendations for the layout of the storm drain system

- Depending on the local conditions, it is recommended that tanks be placed at the end of storm drains during stormy weather to prevent contaminants from entering natural watercourses and thus divert first-wash water from the storm water system to the sewage system.
- It may be necessary to design ponds or large tanks with costly retention and reduction systems that occupy a lot of space.
- Its layout must be considered as soon as the platform layout plan is created.

Parameters for calculating the storm drain system

- Amortization period for external contributions: from 10 to 15 years
- Runoff ratios
  - Roads: 0.85.
  - Plots: 0.7.
  - Open spaces and landscaped areas: 0.3.
- Storm drains should be placed about 50 m apart and at points where the system changes direction.
- Minimum gradient of pipes: 1%. Lower gradients may be accepted if genuinely justified.
- Water velocity: between 0.5 and 3 m/s.

6.8.6. Sanitation: wastewater disposal system

In theory, the nature of the wastewater produced in logistics platforms is similar to that of urban wastewater, since users generally do not carry out production processes that generate industrial waste with chemical effluents. If such processes do occur, the user that generates this pollution must have its own internal sewage system so that the wastewater it discharges into the general system is similar to urban wastewater. If such industrial companies are allowed to set up in a platform, a sump should be installed to sample their wastewater before they are connected to the general system in order to control discharges into the storm drain and wastewater systems.

External connection of a platform's wastewater disposal system

A wastewater disposal system in an urban logistics platforms is generally connected to an external interceptor, which links to the system of general wastewater treatment plants in that urban area.
In the case of platforms that are remote from urban sewage systems, the necessary treatment plants should be planned and constructed at the network outlet and connected to the external drainage system (usually rivers). These treatment plants should be designed to process urban-type effluent discharges.

**Design of a platform's internal wastewater disposal system**

*Basic parameters for designing the system*

The following basic parameters are recommended for calculating the system:

- Minimum gradient of sewer pipes: 1%.
- Minimum diameter: 300 mm.
- Materials for sewer pipes: PVC for small pipes (300-500 mm); concrete for larger pipes.
- Flow rate prediction: this is based on a rate equivalent to that of the drinking water supply, less 10% for losses.
- Reference velocity: between 0.5 and 3 m/s.

*Other recommendations*

- Accessible manholes at bends in the sewer pipes and at connections, at a distance not greater than 50 m.

6.8.7. Medium- and low-voltage electrical power network

The standards for the electrical power network must comply with the specifications of the companies that supply electrical power in each country.

It should be noted, however, that the electrical power consumption ratios in logistics platforms are lower than those of standard industrial parks. As a guideline, the average consumption rate is between 50 and 100 W per m² of constructed space, based on the percentages of:

- Logistics space, with ratios of around 40 W/m².
- Surface area for other purposes (shops, offices, etc.), with ratios of around 125 W/m².

In any event, calculations should take account of each country’s consumption levels. A simultaneity coefficient of 0.5 should be applied, with a 30% reserve for all plots. Specific facilities such as controlled-temperature logistics warehouses have higher standards.

**Transformation and distribution**

A platform is typically supplied by means of a high-voltage line. Distribution throughout the LP is medium voltage, so a power substation is required to perform this transformation (this can be new or an existing one can be adapted).

The network should therefore begin at a substation, which will supply the power lines for the whole platform. The distribution network should have transformation centres.

Power networks are generally installed underground or in tubing, without a chamber, but the supply company is responsible for setting the regulations and standards in each case. The conductors should be made of aluminium.

**Supply type: low or medium voltage**

Users can choose the voltage they prefer for each plot. We recommend that a low voltage supply of up to 250 kW per user be planned, and medium voltage be supplied for higher levels of demand.

**Low- or medium-voltage supply network**

The network should be created using chambers so that the cables can be extended whenever the service is requested, by determining the supply type and power in each case.
6.8.8. Public lighting network

The light points in an LP are supplied from the public lighting network and are generally provided by means of 12 m lamp posts and LED lighting.

Installations should be buried (copper) for the lamp posts and overhead for façade spotlights. Lights should be switched on automatically, with time controls, natural lighting and energy-saving equipment to reduce the amount of power used at off-peak times.

—Table 70: Recommendations for the lighting criteria in a platform—

| Arterial/distributor roads | · Average lighting: 25 lux  
|                           | · Average uniformity on the carriageway: 0.5  
|                           | · Lamp posts with an average height of 12 m. |
| Roundabouts and specific traffic points | · Average lighting: 30 lux  
|                                          | · Average uniformity on the carriageway: 0.6  
|                                          | · 12 m lamp posts |
| Local and secondary roads | · Average lighting: 15 lux  
|                           | · Average uniformity on the carriageway: 0.25  
|                           | · 12 m lamp posts |
| Manoeuvring areas | · Average lighting: 15 lux, to be supplemented with lighting under the canopies of warehouses.  
|                   | · Spotlights on façades. |
| Parking areas | · Average lighting: 10 lux  
|                | · 12 m lamp posts. |
| Pedestrian walkways and green spaces | · Average lighting: 5 lux.  
|                                       | · 4 m lamp posts. |

6.8.9. Internal telecommunications network

Most leading logistics platforms have a fibre optic network for telecommunications. This network is installed from the outset or laid in lines to be made operational at a later date.

The criteria for the size of the proposed network are defined by the telecommunications companies in each country and for each project, and take account of the demands and security needs of the LP.

In liberalized telecommunications markets, flexible solutions are normally provided. These involve planning a number of coordinated lines (with a network made up of a shared duct of lines, owned by the platform developer) for several suppliers that must use this network (each line in the shared duct is assigned on an individual basis), with a meter or individual chamber for each one.

6.8.10. Gas network

Unlike in an industrial park, a gas supply is not generally necessary in a logistics platform.

If it is included, due to availability and ease of installation, it may be installed in just one part of the LP and focus on the most energy-intensive functions. If this is the case, the parameters for implementing the network will be defined by the supply company and the regulations in each country.

The networks include:

- Connections to the existing or future network outside the LP network, with antennas and regulation and monitoring stations.
• Platform distribution system.
• Connection to each block.
• General receiving equipment for each warehouse.

6.8.11. Installation of services tunnels or buried ducts in the LPs

The installation of accessible services tunnels to house various services as an alternative to installing individual lines for each service depends on the culture regarding infrastructure in each country and an analysis of its financial cost compared to the benefits of having easy access. The services tunnels can be replaced by other technical solutions that offer similar advantages and cost less.

This subject has evolved depending on budget and how the tunnels work. After a period of opting for tunnels to house a number of services, the preferred option is currently buried ducts. Tunnels are generally not installed in logistics platforms these days, except in key areas that are essential for large-scale projects.

When accessible tunnels are selected in exceptional cases, it is important to follow good practices: centralized access to the interior, dimensions that facilitate circulation, doors that provide access to different sections of the tunnel, consideration of interference with transverse conducts, etc.

6.8.12. Waste collection in an LP

The company that manages the LP or the body responsible for maintenance should organize the internal collection of solid waste (often very important in the case of packaging, pallets, etc.). In general, each company has its own waste management company, and “green points” should be installed in the platform to facilitate waste collection from outside the platform.

The LPs should promote collaborative solutions to waste management among users in order to optimize synergies and ensure the best possible joint results.

In some platforms, waste should be concentrated in front of operational facilities, thereby leaving the most representative spaces clear (i.e. the offices).

—Figure 71: Waste collection point (Cartagena Free Zone, Colombia)—
6.9. Environmental sustainability in the design of the LPs

6.9.1. Environmental sustainability trends in the design of logistics platforms

There is a growing trend to introduce sustainable design practices in logistics platforms and parks. Some global promoters have become pioneers in the field of eco-warehouses, thereby setting the standards for the entire sector, including the following areas:

—Table 72: Sustainability trends in the design of logistics platforms—

<table>
<thead>
<tr>
<th>Trends</th>
<th>Comments</th>
</tr>
</thead>
</table>
| Efficient use of energy | · Energy reduction standards  
                          · Use of roof solar panels  
                          · In some cases, small wind turbines                                   |
| Sustainable landscaping | · Native species and increased biodiversity  
                          · Recycling water for irrigation  
                          · Concentration of open spaces in areas with maximum visibility and easy maintenance  
                          · Barrier effect with the environment                                   |
| Water and waste recycling | · Separate water collection systems  
                          · Collaborative solid waste systems  
                          · Use of storm water management ponds                                     |
| Optimization of natural light | · In warehouses: skylights above the aisles between shelves                 |
| Biodegradable materials | · Use of wood in structures  
                          · Filtering soil in non-loading areas                                       |

In general, the LPs will analyse the possibilities of adopting some of these trends, depending on the conditions in each country.

—Figure 73: Examples of solar panels—

Warehouse with a solar panel system at CIM la Selva (Girona, Spain)

Warehouse with solar panels on the façade, Perpignan-Saint Charles logistics centre (France)

Source of images: CIMALSA and the authors
6.9.2. Recommendations for landscape planning in the LPs

Landscape planning should focus on the key areas of the LPs, and small areas that are difficult to maintain should be avoided.

Thus, landscape features should be concentrated in the most representative parts of the platform (entrance, central reservations and roundabouts on the arterial roads).

Native species should be planted and an irrigation system installed to water and maintain them.

Trees and plants should not be planted in truck manoeuvre areas or near water systems.

Planted areas are sometimes located around the edges and in the areas that separate the platform from the urban environment, thereby producing a barrier effect and minimizing the impact on the surrounding area.
CHAP. 7

SERVICES IN THE LPS
This section addresses the services that should be offered in the LPs and the delivery criteria. A distinction has been made between services offered to direct users and those offered to indirect users of the LP.

The services are divided into two major groups: logistics services and complementary services provided in or from the platform.

It also includes a recommendation regarding the level of necessity.

7.1. Types of service in a logistics platform

A logistics platform is a large service centre. The services provided have wide-ranging features and extremely complex flows.

Generally speaking, the services provided in or from a logistics platform can be divided into two major groups:

- **Logistics services**
  - These are the key services in a platform and are the reason for its existence.
  - They must encompass the entire logistics chain: transport, storage, distribution, value-added logistics, etc.
  - Logistics services may be multi-purpose (the most varied possible) or specialized, and may even focus on a specific sector or supply chain (cluster services).
  - The main services are usually provided by the logistics and transport operators based in the platform.

- **Non-logistics or complementary services**
  - These are all the interconnected complementary services in a platform. They can be classified into the following generic groups:
    - **Basic services.** These are the services required to make a platform function, including infrastructure maintenance, security and waste collection. They are normally provided by the platform management company or LPD (see Section 5).
    - **General services.** These are the services aimed at people, vehicles and the companies located in the platform.
    - **Functional logistics services.** These are intermodal services, customs and foreign trade services, telematics services, etc.
    - **Cluster or value-added services.** These are all the “soft” services that help promote the platform as a framework for establishing and concentrating companies.

These services, which are described in this section, are provided by the direct and indirect users of the platform.

Vocational training would be framed within “cluster” services. It is not common for the operating companies of logistics platforms to directly offer training services. However, LPs can make rooms available that can be used by training companies and public education services (see Table 77).

7.2. Logistics services

Services are the fundamental basis of the objective of an LP and are provided by the direct users of the platform to the logistics and distribution companies in their vicinity (external industrial and distribution companies, other operators, wholesalers and retailers, etc.). The range of services always depends on the profile and strategic and functional focus of the platform.
It is important to note that the LPD must not provide these services or compete with its main clients. The importance of some logistics services varies depending on the intended function of the platform, and this determines the operators that are targeted.

The levels of necessity are defined as follows:
• **Critical:** Services that are completely necessary for the type of platform.
• **Desirable:** Non-essential services, but very desirable in this type of platform.
• **Complementary:** Services that grant additional value to the platform and its users.
• **Not necessary:** These services are not necessary in the platform.

The following table outlines the recommendations with respect to the different types of LP according to the classification of logistics platforms set out in paragraph 1.2.2. and indicating the level of necessity of each service group.
Table 74: Target logistics services according to logistics platform type

<table>
<thead>
<tr>
<th>Service types</th>
<th>Service providers</th>
<th>DLP</th>
<th>PLAZ</th>
<th>AFC</th>
<th>DP</th>
<th>AFLC</th>
<th>BLC</th>
<th>CLC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long-distance transport and distribution services</td>
<td>All types of transport sector companies</td>
<td>Critical</td>
<td>Critical</td>
<td>Critical</td>
<td>Critical</td>
<td>Critical</td>
<td>Critical</td>
<td>Critical</td>
</tr>
<tr>
<td>High-turnover logistics services (cross-docking, parcels)</td>
<td>- Partial load companies, parcels - Logistics operators 3PL</td>
<td>Critical</td>
<td>Desirable, depending on location</td>
<td>Critical</td>
<td>Critical</td>
<td>Critical in relation to cluster</td>
<td>Desirable</td>
<td>Critical in relation to cluster</td>
</tr>
<tr>
<td>Low-turnover logistics services</td>
<td>- Warehouse companies - Logistics operators 3PL</td>
<td>Critical</td>
<td>Critical</td>
<td>Complementary</td>
<td>Desirable, depending on location</td>
<td>Desirable in relation to cluster</td>
<td>Complementary</td>
<td>Critical in relation to cluster</td>
</tr>
<tr>
<td>Value-added logistics services</td>
<td>- Logistics operators 3PL - Warehouse companies</td>
<td>Desirable</td>
<td>Desirable</td>
<td>Complementary</td>
<td>Complementary</td>
<td>Critical in relation to cluster</td>
<td>Complementary</td>
<td>Critical in relation to cluster</td>
</tr>
<tr>
<td>Rail intermodality services</td>
<td>- Intermodal rail operators - Logistics operators</td>
<td>Desirable if there is a link</td>
<td>Desirable, at least in the vicinity</td>
<td>Not necessary</td>
<td>Critical</td>
<td>Not necessary</td>
<td>Desirable if there is a link</td>
<td>Desirable if there is a link</td>
</tr>
<tr>
<td>Port intermodality services</td>
<td>- Shipping/stowage companies - Terminal operators</td>
<td>Not necessary</td>
<td>Critical in the vicinity (land/port)</td>
<td>Not necessary</td>
<td>Not necessary</td>
<td>Not necessary</td>
<td>Not necessary</td>
<td>Not necessary</td>
</tr>
<tr>
<td>Air freight services</td>
<td>- Air freight companies - Handling agents - Couriers and groupage operators - Cargo agents</td>
<td>Not necessary</td>
<td>Not necessary</td>
<td>Critical</td>
<td>Not necessary</td>
<td>Not necessary</td>
<td>Not necessary</td>
<td>Not necessary</td>
</tr>
<tr>
<td>Specialized cluster services</td>
<td>- General logistics operators - Cluster operators</td>
<td>Complementary</td>
<td>Complementary</td>
<td>Not necessary</td>
<td>Complementary</td>
<td>Critical: food, controlled temperature</td>
<td>Complementary</td>
<td>Critical: specialized operators</td>
</tr>
</tbody>
</table>
7.3. Basic services

These are services that are normally provided by the LPD by means of different delivery methods: directly provided by the LPD, indirectly provided or entrusted to the community of co-owners, much like a condominium. The models used to deliver the basic services provided by the LPD are described in depth in Section 5.

Basic services are generally payable by the users of the platform (through service charges) and are often added to rental or concession fees as a percentage. This charge is around 10% of the rental fee and can be as high as 15% in the case of the most expensive services.

The different costs may be distributed evenly among users or weighted according to each service and usage level. In this case, the system for distributing such costs should be very clearly established.

—Table 75: Delivery of basic services in a logistics platform—

<table>
<thead>
<tr>
<th>Service</th>
<th>Modes of delivery by the LPD</th>
<th>Level of necessity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maintenance of infrastructure</strong></td>
<td>· Direct delivery by the platform or indirect delivery (outsourced)</td>
<td>Critical</td>
</tr>
<tr>
<td>(roads, pipes, lighting)</td>
<td>· Indirect delivery for maintenance of more specialized infrastructure</td>
<td></td>
</tr>
<tr>
<td><strong>Security</strong></td>
<td>· Indirect delivery by specialized services</td>
<td>Critical</td>
</tr>
<tr>
<td>(access control, general security)</td>
<td>· Combination of methods.</td>
<td></td>
</tr>
<tr>
<td><strong>Environmental services</strong></td>
<td>· In general, indirect delivery by specialized companies or public service providers</td>
<td>Desirable</td>
</tr>
<tr>
<td>(including waste collection)</td>
<td>· Sometimes with a common management company</td>
<td></td>
</tr>
<tr>
<td><strong>Public transport</strong></td>
<td>· In general, a public service, sometimes promoted or supported by the platform management company</td>
<td>Desirable</td>
</tr>
<tr>
<td>(employee transport to external interchanges, internal transport)</td>
<td>· In some cases, organization of cooperative transport to interchanges with the general network.</td>
<td></td>
</tr>
</tbody>
</table>

7.4. General services in the LPs

These are the services offered by the companies based in the service area.

They are aimed primarily at the users of the platform (those that are based there), but they may also be aimed at users in the surrounding area (clients and visitors, passing trade, companies based in the vicinity, etc.) in a complementary manner.
### Table 76: General services in the LPs

<table>
<thead>
<tr>
<th>Service</th>
<th>Recommendations for delivery of the service</th>
<th>Level of necessity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Integrated service centre</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Restaurant and hotel services</td>
<td>· In the service centre.</td>
<td>Critical</td>
</tr>
<tr>
<td>· Complementary commercial services</td>
<td>· An open, competitive regime.</td>
<td></td>
</tr>
<tr>
<td>· Administrative area</td>
<td>· Range of offices in the service centre.</td>
<td>Desirable</td>
</tr>
<tr>
<td>· Offices for logistics and transport companies</td>
<td>· An open, competitive regime.</td>
<td></td>
</tr>
<tr>
<td>and business centre</td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Social, religious services, etc.</td>
<td>· Spaces provided by the LPD.</td>
<td>Desirable</td>
</tr>
<tr>
<td>· Provided by public and private third-party</td>
<td></td>
<td></td>
</tr>
<tr>
<td>companies.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Vehicle service centre</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Petrol station</td>
<td>· Preferably by means of a concession granted to an operating or distribution company.</td>
<td>Critical</td>
</tr>
<tr>
<td>· Parking for heavy goods vehicles</td>
<td>· Preferably by means of a concession granted to a specialized operator.</td>
<td>Critical</td>
</tr>
<tr>
<td>· Repair shops</td>
<td>· Concession granted to specialized companies.</td>
<td>Complementary</td>
</tr>
<tr>
<td>· Technical vehicle inspection services</td>
<td>· Provided by an authorized operator.</td>
<td>Complementary if possible</td>
</tr>
<tr>
<td><strong>Container services (container freight station)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Container area</td>
<td>· Provided by a specialized operator.</td>
<td>Critical in port and</td>
</tr>
<tr>
<td>· Container consolidation and deconsolidation</td>
<td>· As a rule, only one operator.</td>
<td>intermodal logistics</td>
</tr>
<tr>
<td>facilities</td>
<td></td>
<td>activity zones</td>
</tr>
<tr>
<td>· Container repair shops and services</td>
<td></td>
<td>Desirable in distribution</td>
</tr>
<tr>
<td>· Empty container depot</td>
<td></td>
<td>platforms</td>
</tr>
<tr>
<td><strong>Customs and foreign trade services</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Customs and customs-related services, in an</td>
<td>· Provided by government departments.</td>
<td>Critical in PLAZ,</td>
</tr>
<tr>
<td>integrated manner if possible</td>
<td>· Spaces normally provided by the LPD.</td>
<td>air freight centres,</td>
</tr>
<tr>
<td>· Where possible, a favourable tax regime:</td>
<td></td>
<td>border centres</td>
</tr>
<tr>
<td>· Support for certain sectors, industries and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>companies through the creation of customs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>facilities.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Charging of taxes and import duties in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>accordance with sales, which represents a huge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>advantage for SMEs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Participation in the improvement of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>customs and customs-related procedures within</td>
<td></td>
<td></td>
</tr>
<tr>
<td>the context of the platform.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Companies that provide foreign trade</td>
<td>· In the administration centre or service centre.</td>
<td>Critical in PLAZ and</td>
</tr>
<tr>
<td>support services (customs agents, etc.)</td>
<td>· An open, competitive regime.</td>
<td>border centres</td>
</tr>
</tbody>
</table>
7.5. **Cluster or value-added services**

Cluster or value-added services are all the “soft” services that help promote platforms as a framework for establishing and concentrating companies. A logistics platform can become an open framework for applying value-added initiatives, in line with different groups of services, such as those proposed in the following table:

—Table 77: Cluster or value-added services in logistics platforms—

<table>
<thead>
<tr>
<th>Service</th>
<th>Specific features and quality levels</th>
<th>Recommendations for providing them</th>
<th>Level of necessity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strengthening non-logistics value-added services</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Centralization of purchases</td>
<td>· As with the group described above, these services can be provided through several types of initiative:</td>
<td>The LPD should collaborate with the users and external public and private organizations that provide services</td>
<td>Complementary</td>
</tr>
<tr>
<td>· Exchange functions and management of human capital</td>
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<td>· Practical consulting</td>
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<tr>
<td>· Security services as a cost-reduction tool, especially insurance costs</td>
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<tr>
<td>· Promotion of environmental sustainability policies.</td>
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<tr>
<td>Contribution of measures to provide support and facilitate relationships with government departments</td>
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<tr>
<td>· Simplification of administrative procedures. Single-window system</td>
<td>· The tendency to make administrative procedures easier is not exclusive to LPs, but it is strongly recommended, especially in top-level platforms.</td>
<td>The LPD should seek agreements with government departments and industry organizations</td>
<td>Complementary</td>
</tr>
<tr>
<td>· Tax support relating to logistics and transport activities, primarily in a local context</td>
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<tr>
<td>· Measures to encourage interaction between the companies based in the platform and government departments: facilitation of authorization, information, incentives, financing facilities for industrial and logistics facilities.</td>
<td>· In all cases, it is advisable to seek the support of experts in government mediation and to use a system of benchmarking with previous experiences.</td>
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</tbody>
</table>
### Framework of collaborative logistics initiatives

- **Pooling of services**
  - Within this group, the initiative must always be collaborative, supported and facilitated by the LPD of the LPs
  - It is also desirable to have support from experts with experience in reference projects, regardless of whether or not they are logistics-related

- **Collaborative cluster projects**
  - The LPD should collaborate with the users and industry organizations in the cluster

| Complementary |

### Other value-added services provided by clusters

- **Training**
  - In general, this group of services should be provided through more extensive initiative frameworks than the LPs themselves in order to involve national and regional governments and other associations and academic entities
  - In these cases, the LPD can play a mediating role with these authorities and thus make it easier, for example, to obtain experience of similar projects and initiatives, and in order to offer the LP as a physical framework for implementing such initiatives

| Complementary |

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### 7.6. Other ICT services to improve logistics functionality

The following table includes the recommended ICT services to improve the logistics activity of the companies based in the platform.
### Table 78: ICT services to improve logistics functionality

<table>
<thead>
<tr>
<th>Service</th>
<th>Specific features and quality levels</th>
<th>Recommendations for providing them</th>
<th>Level of necessity</th>
</tr>
</thead>
</table>
| **Basic telecommunications services**| · Access to telecommunications networks  
· Voice and data broadband services  
· These services are very important in modern logistics and must be fully guaranteed by the management company  
· The trend in platforms is to facilitate free access to the range of providers on the market by means of a network of diversified conduits  
· In some cases, the management company takes responsibility for the fibre optic network and establishes agreements with operators | · These services must be fully guaranteed by the LPD  
· In some cases, the LPD takes responsibility for the fibre optic network and establishes agreements with operators | Critical |
| **Technological projects and initiatives** | · Freight exchanges  
· Exchange of information, Logistics service information portals  
· Traceability of vehicles and goods  
· Management of containers  
· Operational integration with ports and airports  
· Optimization of operations and use of the available space  
· Improvement in the implementation of security measures  
· Systems for reserva... | · These services may be provided through four initiative types:  
- Private initiative, paid by each company or group of companies  
- Public initiative, in this case not limited to the domain of the LP (for example, some freight exchange initiatives)  
- Collaborative initiative: among users of the LP or, within a wider context, industry associations  
- Initiatives of the LPD  
· Many of these services are currently being developed and tested in several fields. It is therefore advisable to use experts and compare the results of similar initiatives | Desirable |