Background information

Scenario methodology

Taking a Closer Look
The study “Logistics 2050” developed explorative scenarios of the future for the logistics industry with a long-term and global perspective. The study aims to foster dialogue about the future of logistics by describing a number of different pictures of the world in 2050.

Scenario generation represents a method that is well-suited to systematically identify and describe complex and consistent visions of the future. In futures research, the scenario technique is a key tool used to create alternative images of the future, which can then be compared with each other. Generally, scenarios combine positive and negative aspects, thus providing food for thought on both risks and opportunities, as well as options and strategies. By extending alternative developments into the future, scenarios raise awareness of possible changes of the environment. They assist in identifying and clarifying strategic objectives and preparing knowledge for decision-makers. Since the focus rests not only on the possible future environment, but also on the implications taken from the scenarios, they are the method of choice for reflections on long-term oriented strategies and policy measures.

The Deutsche Post DHL “Logistics 2050” scenario process, which was designed and conducted by foresight experts of Z_punkt The Foresight Company, is outlined the following section.
First, through an environmental analysis, all relevant influencing factors were compiled.

The next step was to estimate – with the help of internal and external experts – the key factors, or main drivers, and their further development (future projections).

This formed the basis for the construction of the raw scenarios using software-based consistency analysis. The purpose of this was to check which projections of a key factor “match” which projections of the other key factors.

This resulted in five internally consistent future scenarios that are substantially different from each other.

A final impact analysis then helped to determine the strategic implications of the various scenarios for logistics.
Environmental Scanning and Key Factor Analysis

Scenario processes are based on key factors, i.e., factors which characterize or significantly determine a given subject and its future development. While all forecasts are uncertain, the degree of uncertainty about the possible future development of individual factors may differ. Demographic trends, for example, are characterized by comparatively low forecast uncertainties. Economic factors, such as consumer preferences, on the other hand, are often subject to considerable uncertainties. Therefore, key factors fall into two categories: factors with relatively low uncertainty, where only one parameter has to be considered for scenario construction, and factors with relatively high uncertainty, which require the consideration of several parameters in the scenario construction. The value of key factors lies in the reduction of complexity: selecting the most relevant influencing variables out of a very large number of parameters. This is done within so-called environmental scanning.

In the “Logistics 2050” process, numerous parameters – the so-called “influencing factors”, which determine trends in the environment of logistics – were identified, systematized, and classified. An initial long list, including more than 60 parameters, was reduced in a first step to 27 influencing factors by combining largely similar parameters.

In a survey, internal logistics experts of Deutsche Post DHL and external experts of Z_punkt The Foresight Company assessed the shortened list of influencing factors, evaluating the degree of uncertainty and the impact strength of each influencing factor. Furthermore, as a next step, a cross-impact analysis of the 27 influencing factors was conducted in order to identify those factors which most actively drive future developments. The results of the survey and the cross-impact analysis served as the basis for determining the final list of 14 key factors.

Determining Possible Future Developments

For each key factor, several future developments are possible. Identifying these so-called projections was part of the next project step, in which expert interviews rendered the input for the identification of possible and plausible projections. A total of 22 interviews with internationally renowned experts from diverse fields were conducted. Each expert provided information and opinions on possible future developments on three to five key factors associated with her or his field of expertise. As a result, for each key factor, three to four projections were synthesized out of the information gathered during the expert interviews.
**Scenario Generation**

The next major step in the construction of scenarios was a consistency check to identify possible conflicts and synergies between the projections. Each set of consistent projections of different key factors forms the basic structure of a scenario (also called raw scenario or projection bundle). A consistency check is necessary because projections of different key factors can harmonize well, but may also lead to implausible combinations. The number of possible raw scenarios grows rapidly with the number of key factors and projections. In this case, more than 15 million projection bundles existed, which required another reduction of complexity. Two methodological approaches were used to analyze interdependencies between key factors, reduce complexity, and check the consistency of the raw scenarios.

The morphological box maps key factors and their respective projections and helps to identify consistent or even synergetic syntheses of them. As scenario building is designed as a team process, consistencies were discussed and determined in a workshop in which experts from Deutsche Post DHL and Z_punkt The Foresight Company participated. Issues of dissent were discussed intensively, which induced several changes to the initial structure of the projections.

An additional step employed a software-based approach, the consistency matrix and clustering. In this process, all pairs of projections of different key factors are assigned “consistency values” describing their compatibility. Then, the software calculates a consistency score for each projection bundle, allowing inconsistent and low-consistency bundles to be dropped. As is usually the case, a fairly large number of projection bundles remained. Hence, the next step was a clustering of projection bundles based not only on similarities, but also on the findings of the initial cross-impact analysis of the influencing factors. Thus, in the clustering process, the projections of the most actively influencing factors were considered as given. Five of the identified clusters were then chosen as raw scenarios. In choosing these specific raw scenarios, an emphasis was laid on having each projection appear at least once in one of the scenarios so that the entire space of possibilities of future developments would be mirrored in the scenario selection.
Validation and Enrichment of the Scenarios and Identifying Implications for the Logistics Industry

The raw scenarios were discussed during two expert workshops with a number of external experts who had previously participated in the expert interviews, as well as internal experts of Deutsche Post DHL. The workshop participants elaborated on assumptions about the causalities or underlying “logic” of a scenario, and discussed possible paths leading to each scenario. They also generated and enriched ideas on how these future developments could influence the logistics industry. While the first workshop emphasized scenario enrichment, the second workshop focused more on the implications for the logistics industry and on possible strategic options.

In addition to the findings of the expert interviews and the scenario enrichment workshops, six high-ranking managers of Deutsche Post DHL were extensively interviewed on their perspective about the scenarios. Moreover, the top executives of Deutsche Post DHL were invited to evaluate in an online survey central logistics implications for each scenario in the time before the second expert workshop.