

CAPABILITY CLAIM V – TEAM ORIENTED WITH LOCAL PRESENCE

Planeground has a clearly pragmatic and team-oriented attitude in rendering their planning and consultancy services for international design-study projects:

- ➔ We prefer a lean and mean project structure with limited administrative overhead extensive personal exchange among all partners; direct communication lines where appropriate; permanent inclusion of client and maximum local presence with on-site working sessions with PRG project staff

3. *The method for sharing, storage, organization and protection of data*

- ➔ For the present design-study that is scheduled for 6 months, the installation of any project management software would be overrated. We propose to install a ftp-site on our planeground server that is securely accessible with login and password via an internet-browser. The highly confidential data will remain locally stored on our server in the CGN office (instead of in the cloud) and thus is protected against abuse. In addition any involved person in the project will have to subscribe to the non-disclosure agreement.
- ➔ The application of sophisticated BIM modelling is -according to us-, premature at this stage of the project and only adds up to extra project cost without any reasonable output.

4. *Evaluation of design optimizations*

The procedure to measure and balance the optimization potential of a particular concept is closely related to our general approach of concept finding (as described above in: 2. The treatment of comments and suggestions) and takes place in 3 steps:

- ➔ Identification of viable options and their elaboration to a comparable level of planning detail.
- ➔ Determination of selection criteria including respective weighing factors (in close consultation with client). Here the cost component (CAPEX & OPEX) can be duly addressed.
- ➔ Attaching score values for each criteria and option. This should be done on the occasion of a working session with the client in order to deliver transparent results of the evaluation



Figure 2: Example of evaluation of boarding bridge concepts / optimizations Terminal 2 (FRA)

5. Identification of areas for future Value Engineering

The idea of value engineering i.e. spending available (financial) resources to where the effect is greatest and most demanded, is a helpful methodology to steer a project towards maximum output for minimum invest. These ideas can be even brought further by incorporating the dimension of asset management (i.e. the consideration of maintenance and life-cycle cost). We at plane ground are accustomed to intuitively integrate the relevant aspects of value engineering in our design process. Focus areas to apply value engineering in a terminal are for example:

- The processor areas e.g: security control, border control etc. → These processes are usually a nuisance for the passengers and are affecting their “comfort zone”. This means, that the potential to augment the passenger experience and satisfaction rate can be high with relatively low expenses. So, minor investments for a little better quality of e.g. light and fit-out concept could be worthwhile. However the dwell time normally is not too long in those areas – so costly technical installation to create high-end climatization zones would probably not pay-off.
- The Retail and F&B area in turn should have a very high qualitative standard and classy ambiance to support relaxation of the passengers in order to stimulate the propensity to shop and consume.
- The Pier again with its gate areas can be of a lower quality standard, provided the operational concept of the terminal is such, to keep passengers as long as possible in the retail zones and only release them shortly before boarding (also contributing: late gate call). In this case the Pier does only constitute of an “extended boarding area” with minimum dwell time of the PAX.
- Baggage handling and technical areas could be built with minimum standards and dimensions.

2.2 Scope of Works

The programme of works (i.e. amount and scope of the study) is intended to optimally align with the client’s goal setting. The comprehensive proposed scope of works is listed hereunder.

CAPABILITY CLAIM VI – YOU SEE WHAT YOU GET

The pre-design study must not be confused with the subsequent architect’s job to work out a comprehensive schematic/preliminary design of the developments. However uncertainties remain pertaining to the client’s expectations on extent and level of detailing of the planning studies.

- **Planeground’s understanding is: to provide concept layouts, design principles, exemplary details and representative 3D renders.**
- **To deal with uncertainties in scope, we believe it is more appropriate to start off with a lean assignment and dive deeper where need be (depending on arising questions during the project), than the other way around.**

PART 1: ANALYTICAL PART

AP1: Inception / Compilation and sighting of project information including:

- ➔ Set-up of project organization / administration
- ➔ Organization & Execution of Kick-off session (PRG strategy; project goal; project frame; communication lines; meeting schedule) & sight visit in PRG
- ➔ Kick-off session incl. a) Clarification of the client's intention / overarching strategic goalsetting b) Description and interpretation of territorial / zoning limit
- ➔ Catalogue of required information / Questionnaire (submit to client + follow-up)
- ➔ Reading & Studying of basic material
- ➔ Preparation of a workable CAD planning basis of existing terminal infra (incl. adjacent infrastructure)

AP2 Review / Analysis on ADPi Study Conclusions with respect to Passenger Terminal Developments (--> 2nd opinion)

- ➔ Organization and execution of Workshop with Client (and relevant Users!) to gather feed-back from OPS- & Commercial perspective
- ➔ Review of a) Development concept (Masterplan level) b) Terminal floor plans 2040 (Terminal Planning Level)
- ➔ Review and evaluation of other relevant information and/or studies with relevance to the project
- ➔ Summary of findings & Discussion with client --> presentation and documentation

AP3 Evaluation of conditions & capabilities of existing terminal infrastructure incl. capacity / demand analysis

- ➔ Computation of all relevant PAX/BAX-Peak hour figures (from 2017 flight schedule) --> existing PAX/BAX-Flow demand
- ➔ Computation of PAX aircraft handling peak (from 2017 flight schedule) --> existing demand of aircraft positions / gates
- ➔ Workshops with PRG ops / terminal management department for identification of insufficiencies / inefficiencies of current infrastructure
- ➔ Analysis of current processing / area capacity 2017 (existing terminal) IATA Methodology --> Check-In; Security; Emigration, Immigration; Bag-Reclaim; Bag Sorting; Gates (Bus and Contact).
- ➔ Analysis of 2040 PAX/BAX demand (based on flight schedule 2040 or assumptions on 2040 projection)
- ➔ Identification of current and future capacity constraints of existing PRG terminal infrastructure - related to PAX/BAX areas
- ➔ Analysis and evaluation of: a) Suitability of existing terminal security concept --> Preparation of thematic floor plans + descriptive analysis
- ➔ Analysis and evaluation of: b) Suitability of existing terminal commercial area concept --> Preparation of thematic floor plans + descriptive analysis
- ➔ Analysis and evaluation of: c) Suitability of existing functional terminal area configuration -> Preparation of thematic floor plans + descriptive analysis
- ➔ Appraisal and co-ordination of interaction of terminal development with respect to a) existing public area facilities --> Descriptive Appraisal with graphics
- ➔ Appraisal and co-ordination of interaction of terminal development with respect to b) transportation services --> Descriptive Appraisal with graphics
- ➔ Appraisal and co-ordination of interaction of terminal development with respect to c) ongoing and future development plans --> Descriptive Appraisal with graphics

AP4 Critical Impact Analysis of ADPi Study recommendations pertaining to existing Terminal Infrastructure

- Area and flow-analysis of ADPi development concept with focus on future changes for existing terminal --> Comparative diagrams (e.g. heat maps)
- Identification of functions and areas (in existing terminal) with considerable future shifts in utilization; Analysis of capacity and serviceability of these areas
- Assessment of effects on general applicability of ADPi conclusions. --> Presentation and Discussion with Client
- List of observations and recommended in-depth studies to be projected

AP5 Report of Analysis Part

- Preparation of summary document of findings of AP2 - AP4
- Preparation and organization of endpresentation of Part 1

PART 2: DESIGN PART

A) CONCEPTUAL ELABORATION - (SKETCH DESIGN LEVEL / IN VARIANTS)

DP/A1 Design Proposals: Layout arrangements (i.e. Floor Plans)

- Compilation of Design Base for Phase I and II --> PAX/BAX-Flow quantities; processes; area requirements; quality and technical standards etc. --> A4 doc
- Sketch Development Options (all possible variants) - depicting layer concept / processor allocation / approx. dimensions / main functional areas (for Phase II)
- Evaluation of sketches on main criteria as e.g. functionality, flexibility, cost effectiveness; phaseability etc.
- Workshop with client; Selection of preferred principle layout (layer concept, main processor allocation; functional areas) to further elaborate
- Elaboration and study on sub-variants at designated areas based on selected principle layout, Preparation of "model kit"
- Indication of functional / operational impact of selected concept to facilities outside of project frame (e.g. Terminal 1)

DP/A2 Design Proposals: Functional schemes (i.e. Flows & Processes)

- PAX/BAX-Flows Sketch Diagramms for most relevant options (Phase I and Phase II)
- Security concept diagramms (also indication of Schengen/Non-Schengen; clean; unclean, public area)
- Principles on commercial concept e.g. thematic sketch of high-quality dwell area vs "lower-cost" processing & circulation area
- Study on phasing of developments for flexibel adaptation of terminal infrastructure according to demand (in presentation form)

DP/A3 Design Proposals: Architectural Design (i.e. exterior & interior spatial design)

- Study on urban and architectural context of terminal (incl. consideration of future plans of landside plaza / station etc) --> presentation
- Study on existing airport architecture design (exterior & interior); general configuration and historic development

- Elaboration of aspiration, principles, elements, style & form language that should characterize future PRG terminal architecture
- Study on sustainability concept (e.g. energy efficiency; CO2 neutrality; materials and life-cycle usability etc)
- Sketches of exterior shapes of terminal expansion; embedded in existing building formation --> hand sketches (also isometric)
- Sketches of interior space & design concepts / ideas --> preparation of hand sketches (also isometric)
- Study on colours & materials for interior & exterior design
- Preparation of a design guideline for exterior and interior design (under consideration of its architectural and urban context) --> presentation for decision workshop

DP/A4 Workshop and Evaluation of options / Selection of preferred options

- Organization and execution of Workshop and final selection of basic concept 2040 for further elaboration
- Preparation of presentation as decision basis document

B) FURTHER ELABORATION OF SELECTED PROPOSAL - CAD-LEVEL / PRINCIPLE DETAIL

DP/B1 Elaboration on terminal functionality (calculations, plans, schemes)

Calculation of functional area dimensions & processor quantities (indicative programme of requirements)

- Definition of parameters for PAX/BAX-Flow demand calculations (in consultation with client / workshop) - e.g. ratio self-service check-in; number bags/Non-EU PAX; etc.
- Calculation of PAX/BAX-Flows in design peak-hour for Phase I (20??) and Phase II (2040) at main processors and functional areas of Terminal 2 extension
- Facility sizing computation to determine number of: Check-in counters (conventional, kiosk, Self-service); Security control lanes (for dep. and transf. PAX), emigration & immigration booths incl. easy-pass (for dep. and transf. PAX); US-departure screening; gates (contact- and busgates); number and length of baggage reclaim belts (inbound) and baggage make up carroussels (outbound).
- Facility sizing computation to determine area demand for: Check-in hall incl. queuing; Security control incl. queuing area; Emigration & immigration incl. queuing; Transfer control; customs control; Gates; Baggage reclaim hall, Baggage handling area,
- Revision of additional requirements provided by client to be considered in design
- Coordination and consideration of requirements at interface with adjacent facilities in public area / dedicated for transportation services
- Summarization of set of requirements as basis for design study (= indicative programme of requirements) --> approved A4 doc

Review of ADPi Airside / Apron Concept (related to Terminal 2 developments)

- Evaluation and commenting on ADPi apron concept (layout of aircraft positioning and adjacent manoeuvring area)
- Study on compatibility of ADPi apron concept in relation to proposed terminal concept

Functional Schemes (CAD planning / diagrams):

- Plans showing Flows of PAX & Bax, Goods and Staff --> set of plans of all levels

- Security concept plans indicating areas relevant to security, border control, customs control
- Elaboration of service and supply concept
- Elaboration of commercial concept (Retail, Food & Beverage, BC-Lounges)

Construction phasing concept

- Identification of possible access and available area for building site (input from client because focus area is "out of project frame / zoning") - both Phases I & II
- Preparation of graphics showing consecutive progress of building works with closed-off areas and interim operational concept - both Phases I & II

DP/B2 Architectural Design Concept (CAD & 3D model)

Elaboration of Floor Plans; Sections and Elevations

- Determination of structural grid and floor level heights
- Elaboration of Floor Plans (all levels and 2 phases) --> A0 CAD Plans
- Execution of workshops to discuss floor plan concepts
- Elaboration of typical sections and elevations (2 per phase = in total 4 sections and 4 elevations) --> A0 CAD Plans
- Development of 3D modell as basis for quick isometric views and 3D renderings

Exterior design / Facade concept (material, finishes, principle details)

- Study on Facade concept (in variants) with materials colours, finishes - exemplary details, sections
- Preparation of presentation for decision making by client on facade principles and exemplary details
- Execution of workshops to discuss exterior design concepts

Interior Design Concept (e.g. exemplary details, materials and furniture)

- Determination of typical materials, colours finishes and furniture in gate area
- Determination of typical materials, colours, finishes, furniture and shop facade in retail area
- Interim presentation incl. "mood-boards" and typical interior 3D renders (= in medium quality resolution) for decision making by client.
- Execution of workshops to discuss interior design concepts

Preparation of Cost Estimation

- Floor area calculations (for 2 phases); Determination of the unit cost / sqm terminal (assumed in consultation with client)
- Execution of workshop with regards to cost calculations
- Cost calculation and presentation --> xls-Format
- not included: detailed cost calculation

Preparation of 3D model

- Establishment of 3D model of Terminal 2 development project (2 phases)

DP/B3 Technical operability studies ('feasibility' level)

Structural principles (feasibility)

- Determination of load assumptions
- Execution of workshop to discuss structural principle solutions
- Elaboration on construction principles of bearing structure, stiffening concept and foundation at 2 typical cross-section of new T2 building (1 x pier; 1 x core building)
- Elaboration on feasible structural connection at junction to existing Terminal 2
- Short report on proposal of viable principles for structural system concept for new Terminal 2 buildings

HVAC principles (feasibility)

- Determination of heating/cooling demand assumptions for new Terminal 2 developments
- Execution of workshop to discuss HVAC principle solutions
- Elaboration on principles of HVAC concept for new T2 developments at typical locations (1 x pier; 1 x core building) / area requirements for new HVAC system
- Evaluation of compatibility of new HVAC system at junction existing / new Terminal 2; elaboration of possible constraints and viable principles for solutions.
- Short report on proposal of viable principles for HVAC system concept

Mechanical & Electrical principles (feasibility)

- Determination of M&E demand assumptions for new Terminal 2 developments
- Execution of workshop to discuss M&E principle solutions
- Elaboration on principles of M&E systems for new T2 buildings / determination of area requirements for M&E systems
- Short report on proposal of viable principles for M&E system concept for new Terminal 2 buildings

Fire fighting and rescue principles (feasibility)

- Proposal of fire compartments in new T2 buildings
- "Quick-scan study" on principles of fire-extinguishing, smoke outtake, and rescue concept
- Evaluation of fire-fighting & rescue solutions at interface existing / new T2 buildings
- Short report on proposal of viable principles for fire fighting & rescue concept in new Terminal 2 buildings

Baggage System concept (feasibility)

- Determination of System capacity demand T2 (make-up carroussels; break-down belts, sorting capacity; odd-size; early baggage) - depending on client input
- Execution of workshop to discuss Baggage Handling concept solutions
- Elaboration of area and facility demand / BHS requirements incl. "quick-scan" of extendability of existing BHS
- Short report on proposal of viable extension of BHS in T2

DP/B4 Preparation of photo-realistic 2D+3D renders

- Production of 3 interior & 3 exterior 3D high-resolution renderings (perspective selected in consultation with client)

3. APPROACH AND PROJECT ORGANISATION

a consequence, it is proposed to finalize the analytical part within 6-7 weeks in order to reach common grounds for the elaboration on the concept as soon as possible.

The Part B – Design Part displays our approach of iterative concept finding and is subdivided in three -partly overlapping- phases comprising of:

- Subpart DP/A: Conceptual elaboration → ca. 8 weeks
- Subpart DP/B: Further elaboration of preferred option → ca. 14 weeks
- Subpart DP/C: Verification of structure capabilities → ca. 5 weeks

Please refer to the detailed schedule in A3-format attached to this document. The complete shows the tasks to be accomplished per subpart in even more detail as well as the responsibilities for the elaboration within the team.

2.4 Staff allocation

The staff allocation schedule is closely related with the project schedule and forms the basis for the financial calculation of the indicative tender price. The schedule, which is also attached to this document, reveals the amount of staff-days per professional profile, that is deemed necessary to perform the tasks. We consider it our normal code of practice to be transparent in our staff-input and price-building. We believe, that it helps the client to get a good grip on the effort that the plane-ground-team has estimated for the present design-study. Moreover, it can be taken as an indicative base-line for the further negotiation phase of the tender. This transparency contributes to an open and team-like attitude from the very beginning – and we are inclined to maintain this transparency throughout the project.

For the indicative tender, we have estimated the following staff input:

plane-ground airport consulting:

- Sr. Airport Master Planer (“Project Team Leader”) → ca 50% / 26 weeks
 - Sr. Terminal Architect (“Architect”) → ca. 60% / 26 weeks
 - Sr. Airport Planner (“Airport Project Manager”) → ca 40% /26 weeks
 - Jr. Terminal Architect → ca. 100% / 26 weeks
 - Simulation Analyst → ca. 100% / 6 weeks
- TOTAL: ca 355 days / equivalent to ca. 2,0 FTE

Techniserv (Project Management & Engineering):

- Project Manager (“Project Team Coordinator”) → ca 60% / 26 weeks
 - Technical Engineers / Consultant → ca. 200% / 5 weeks
- TOTAL: ca 126 days / equivalent to ca. 0,7 FTE

Chybik + Kristof (Architecture and Design Planning)

- Chief Architects → ca 20% / 26 weeks
 - Lead Architect → ca. 100% / 26 weeks
 - 2nd Architect → ca. 60% / 22 weeks
 - Support Architect → ca. 100% / 22 weeks
- TOTAL: ca 332 days / equivalent to ca. 1,8 FTE

The above staff-input multiplied with the respective professional rates constitute the proposal’s honorarium. Added with additional (e.g. travel) costs sums up to total price of the indicative tender.