Canton Fair Digital Networking and RFQ Platform

Canton Fair Digital Networking and RFQ

Platform

Functional Specification (Mobile App, Web Portals, CRM Backbone)

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Scope: Canton Fair only (Spring and Autumn sessions; 3 phases per session).

Purpose: define a single end-to-end system that turns Canton Fair interactions into structured leads, requests, and follow-up workflows for visitors, exhibitors, their remote teams, and platform administration.

Status: functional draft for product and engineering alignment.

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1. Audience and reading guide

This document is written to be understandable for non-technical stakeholders while still giving enough detail for engineering and implementation planning.

Recommended reading path:

- Non-technical readers: sections 2 to 6, then section 12 (implementation phases).
- Engineering readers: sections 2 to 12, plus the appendix objects and status models.
- Product/operations readers: sections 2 to 9 and 11 (dashboards and adoption loops).

Key design principles:

- Offline-first user experience: critical actions must work without network connectivity.
- China-compatible delivery: the system must not depend on network services that may be unreliable or inaccessible in mainland China.
- Low friction onboarding: scanning and connecting must be faster than exchanging business cards.
- Everything becomes structured: each scan, message, photo, and request is stored as an object with status and follow-up.
- Canton Fair specific: sessions, phases, halls, and booths are first-class objects.

Important requirement for the similarity product search: offline search is only included if the offline

Note: the same interaction signals that power the workflows can be summarized as aggregated engagement insights

(also available in an event organizer admin view, if a partnership is in place).

package can be kept to a maximum of 40 MB per phase package; otherwise it is online-only with queued sync for offline users.

2. Canton Fair operating model

The Canton Fair runs two sessions per year: a Spring session and an Autumn session. Each session is divided into three phases. Each phase runs for 5 days and phases are separated by 3 days of changeover with no fair operation.

2.1 Sessions and phases (configurable)

The platform must treat each session and phase as configurable data. Dates may vary by year, so the Admin Portal must allow editing and publishing the calendar per session and per phase.

Illustrative calendar pattern (example):

- Spring session: Phase 1 Apr 15-19, break Apr 20-22, Phase 2 Apr 23-27, break Apr 28-30, Phase 3 May 1-5.
- Autumn session: Phase 1 Oct 15-19, break Oct 20-22, Phase 2 Oct 23-27, break Oct 28-30, Phase 3 Oct 31-Nov 4.

2.2 Phase-aware data and UI

- Visitors typically attend one phase; the app should default to the active phase and show phase-relevant exhibitors first.
- Exhibitor booth location (hall and booth number) is mandatory for matching, offline lookup, and route planning.
- Search and filters must include: phase, category, hall, booth number, country/region (if available), and keywords.

3. System overview

The system consists of a mobile app, multiple role-based web portals, and an Odoo-based CRM backbone. The system is designed to convert Canton Fair interactions into structured follow-up work for both sides (visitor and exhibitor), including their remote teams.

3.1 Components

- Mobile app (iOS and Android): Visitor mode, Exhibitor mode, and Remote Team access.
- Web portals: Visitor Portal, Exhibitor Portal, Admin Portal, and an optional Organizer Portal (aggregated only).
- CRM backbone (Odoo-based): leads, contacts, inquiries, tasks, products, attachments, messaging threads, and reporting.
- Integration modules: QR scanning, business card scanning (CamCard SDK), notification delivery, and translation services.

3.2 What the system is not

- Not an e-commerce checkout system. The core is lead capture, RFQs, and post-fair follow-up.
- Not dependent on any single external platform that may be inaccessible in China.
- Not limited to on-site staff: both visitor and exhibitor remote teams are first-class users.

4. User roles and permissions (high level)

A single account can have multiple roles (for example, a visitor can invite their colleague as a remote team member). Permissions must be role-based and scoped by organization (visitor company team vs exhibitor company team).

4.1 Roles

- Visitor (on-site): scans, connects, requests, photos, notes, supplier comparison, route planning.
- Visitor remote team: sees shared data, handles tasks and follow-up, drafts messages, manages comparisons and shortlists.
- Exhibitor company admin: claims booth, manages company profile, manages staff and catalog, assigns inquiries.
- Exhibitor booth staff (on-site): booth mode lead capture, fast replies, scans visitor QR or business cards.
- Exhibitor remote team (back office): responds to inquiries, prepares quotes, tracks sample requests, manages tasks.
- Platform admin: imports and verifies exhibitor lists, controls session/phase configuration, moderation, analytics, support.
- Optional fair organizer: read-only aggregated dashboards, no personal lead access.

4.2 Permission concept

- Visitor data is private by default and can be shared to invited team members with explicit access rights (read or edit).
- Exhibitor data is private within the exhibitor organization, with roles (viewer, responder, manager, admin).
- Cross-party visibility is limited to the content explicitly exchanged via a connection (profile contact data, messages, RFQs).

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5. End-to-end workflows

5.1 Before the fair: seed, claim, and onboarding

- Admin imports the official Canton Fair exhibitor list per session, phase, hall, and booth number.
- The platform creates a pre-filled exhibitor profile per booth: company name, hall, booth number, categories, and a drafted description.
- Exhibitors are invited to claim their booth profile, add staff, generate QR codes, and upload a product catalog.
- Visitors download the app, register, set their language and interests, and optionally download the offline phase index.

5.2 During the fair: connect and request

A connection is created whenever a visitor identifies an exhibitor by scanning a QR code, scanning a business card, or entering hall and booth number. All follow-up actions are attached to that connection.

- Connect methods: scan exhibitor booth QR, scan staff personal QR, enter hall + booth number, scan business card (offline).
- After connection: visitor can browse exhibitor profile and catalog, start chat/email, request quotes, and create a sample request.
- Visitor can take product photos and submit photo-based RFQs; photos are grouped automatically under the relevant exhibitor booth.
- Exhibitor receives inquiries by email and in the portal inbox; responses can be made by booth staff or remote team.

5.3 Between phases: sync and structured follow-up

- During 3-day changeovers, users typically have stable connectivity; the app should prompt a single non-intrusive sync reminder.
- Batch uploads: pending photos, queued inquiries, message drafts, and updated status changes.
- Remote teams organize tasks, request missing data, and prepare quotes while the booth team focuses on new contacts.

5.4 After each phase and after the session

- Visitors and exhibitors export structured datasets: contacts, inquiries, message threads, and attachments grouped by booth.
- The system keeps all data in session and phase context, enabling learning and reuse for the next Canton Fair session.
- Admin reporting focuses on adoption, responsiveness, and workflow completion, not only raw

user counts.

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6. Mobile app functional requirements

6.1 Visitor mode

Registration and identity

- Visitor registers using phone number and email (verification via OTP).
- Visitor profile fields: name, company, role/title, country/region, preferred language, product interest categories.
- Visitor receives a personal QR code that contains a short-lived or revocable token (no personal data encoded in the QR).

Discover and navigation

- Phase selection: the app shows the current phase by default and allows switching phases.
- Exhibitor listing filters: category, hall, booth number, keyword search, and favorites.
- Offline hall map and route planning: build a walking plan through favorite booths for the selected phase.

Connect to exhibitors

- Scan booth QR to connect to the exhibitor company.
- Scan staff QR to connect and identify the staff member responsible for the interaction.
- Enter hall + booth number to connect (must work offline using the local booth index).
- Scan business cards using CamCard SDK. The extracted contact is matched to an exhibitor when possible, otherwise stored as an unclaimed supplier record.

Requests and follow-up

- Catalog RFQ: select one or more catalog products, specify quantities, variants, target market, and requested terms.
- Photo RFQ: take a photo of a product in the booth, attach quantities and notes, and request pricing or specs.
- Sample request: separate workflow with shipping details and status tracking (requested, confirmed, shipped, received).
- Supplier comparison: compare shortlists across MOQ, lead time, certifications, response speed, and inquiry status.

Communication and translation

- Chat thread per connection, with attachments.
- Email thread per connection using templates and attachments.
- Live translation option: show original and translated text side by side; store both versions in the message record.
- Terminology safety: allow users to mark key terms that must not be translated or must be

translated consistently.

Notes, media, and offline-first behavior

- Automatic booth dossier: scans, messages, RFQs, notes, and photos are grouped per booth.
- Offline capture: scans, hall/booth lookup, business card scan, notes, and photo capture work without network.
- Sync manager: show pending items count; allow 'upload on Wi-Fi only'; allow manual 'sync now'.
- Local image compression on device before upload (to reduce bandwidth and storage).

6.2 Exhibitor mode

Claim and company setup

- Exhibitor claims a booth profile based on hall and booth number; verification steps are defined by operations policy.
- Company profile editing: description, address, contacts, product categories, certificates, business hours, languages.
- Generate booth QR code (company) and staff QR codes (personal). Provide printable formats.

Booth staff tools

- Booth mode: ultra-fast lead capture by scanning visitor QR or business cards, tagging interest, and saving.
- Quick replies: template library for common questions (MOQ, lead time, certificates, pricing structure).
- Optional: scan visitor business card and auto-invite them to install the app (see adoption loop section).

Catalog and inquiry handling

- Catalog upload: manual entry and bulk upload (CSV/Excel) with photo bundle import.
- Minimum viable catalog generator: take a simple spreadsheet + photos and produce a usable catalog page set.
- Inquiry inbox: new, urgent, assigned, waiting on visitor, closed. Assignment and internal notes included.
- SLA rules: configurable reminders when an inquiry is not answered within a target time window.

6.3 Remote team access (both sides)

- Team invites: visitor can invite colleagues; exhibitor admin can invite back-office users.
- Task board (Kanban-light): tasks per booth and per inquiry with owners and deadlines.
- Deal room per inquiry: all Q&A;, attachments, quote versions, internal notes, and status in one place.

7. Web portals functional requirements

7.1 Visitor Portal

- Booth dossiers view: same structure as in the app, optimized for desktop review.
- Shortlist and comparison: build and share supplier comparison sets with the visitor team.
- Tasks and follow-up: manage tasks, draft messages, export contact and inquiry data.
- Batch actions: send follow-up emails to multiple exhibitors using templates and translation.

7.2 Exhibitor Portal

- Company profile and staff management.
- Catalog management with bulk import and translation support.
- Inquiry inbox with assignment, internal notes, SLA, and response templates.
- Exports: inquiry and contact export, quote package export per visitor or per inquiry.

7.3 Admin Portal (platform owner)

- Session and phase configuration: calendar, categories, halls, booth ranges, and publication states.
- Exhibitor import pipeline: ingest, validate, dedupe, and map to hall/booth per phase.
- User support tools: account lookup, access troubleshooting, abuse and spam mitigation.
- Analytics: adoption funnel per phase, scan volume, inquiry volume, response time metrics.
- AI operations: manage translation settings, profile drafts, and quality review queues.

7.4 Optional Organizer Portal (aggregated only)

- Aggregated activity metrics per hall and per phase (no personal contact details).
- Category interest trends and general responsiveness indicators.
- Purpose: operational insight and incentives for exhibitors to participate.

8. CRM backbone and data model (Odoo-based)

Odoo is used as the CRM backbone for structured objects and workflows. Canton Fair specific objects must be added so that sessions, phases, halls, and booths are native concepts rather than free-text fields.

8.1 Core objects

- Session: Spring or Autumn edition.
- Phase: 1, 2, 3 with start and end dates, plus changeover break windows.
- Hall and Booth: location identifiers used for lookup, routing, and exhibitor matching.
- Exhibitor: company entity tied to one or more booths and phases.
- Exhibitor Staff: user accounts linked to an exhibitor; each can have a personal QR token.
- Visitor: person entity; can be part of a visitor company team.
- Connection: the relationship between a visitor and an exhibitor (and optionally a staff member).
- Inquiry (RFQ): catalog RFQ, photo RFQ, general question. Each has status, priority, and assigned owner.
- Sample Request: shipping-focused workflow attached to an inquiry or product interest.
- Message Thread: chat and email logs, storing both original and translated text when used.
- Task/Activity: follow-up units with owner, deadline, and status.
- Attachment: images, PDFs, and other files linked to inquiries and messages.

8.2 Standard status models

To keep the system understandable, statuses should be simple, consistent, and shared across the app and portals.

Object Statuses (example)

Connection Active, Archived

Inquiry (RFQ) New, In progress, Waiting on other party, Quote sent, Closed

Sample request Requested, Confirmed, Shipped, Received, Closed

Task Open, Doing, Blocked, Done

9. AI capabilities (functional view)

AI features are used to reduce manual work, improve cross-language communication, and speed up catalog readiness. AI must be deployed in a way that remains usable under China network constraints and supports offline capture with deferred processing when needed.

9.1 AI drafted exhibitor profiles (pre-fill)

- From seeded exhibitor data, generate a clean company description and product-group bullets.
- Mark generated text as editable draft content for exhibitor review and approval.
- Quality control: admin can flag or batch review drafts to avoid unprofessional output.

9.2 Translation that reads naturally

- Chat translation: show original text and translated text, store both, and allow users to copy either.
- Email translation: draft in the sender language, produce a translated draft, allow final edits before sending.
- Terminology control: exhibitor can set product terms that should be translated consistently.

9.3 Summaries and next-action suggestions (optional)

- Booth dossier summary: after a phase day, summarize what happened per booth and list pending actions.
- Inquiry summary: produce a compact brief for back-office handling (what is requested, quantities, constraints).
- Safeguard: summaries are assistive and must link back to the underlying messages and photos.

9.4 Catalog cleaning and translation (optional)

- Normalize product titles, units, and common fields (MOQ, lead time, certifications).
- Translate product descriptions for visitor languages, with exhibitor control over tone and terminology.

10. Product similarity search (offline <= 40 MB; otherwise online)

Goal: a visitor can take a photo of a product and search for exhibitors that offer similar items. Due to scale, offline mode is only included if the per-phase offline package can be kept to 40 MB or less.

10.1 Offline mode (only if size check passes)

- Offline package contains a compact product index, not full images.
- The app produces a compact feature representation of the visitor photo on device.
- The app searches the local product index and returns top matches: exhibitor, hall/booth, and product label if available.
- If thumbnails are not available offline, show placeholders and fetch thumbnails when connectivity returns.

10.2 Size target calculation (example approach)

Assumption for sizing: 10,000 exhibitors, 30 products each, total 300,000 products in the searchable index.

Item Assumption Estimated size

Product count 10,000 exhibitors x 30 products 300,000 products

Vector per product Quantized feature vector + IDs (~72 bytes) 21.6 MB

Booth/exhibitor lookup 10,000 records (compact) < 2 MB

Overhead headers, light indexing, compression variable (target < 16 MB)

Total offline package target Per phase <= 40 MB

Implementation rule: the build pipeline must measure the final package size. If it exceeds 40 MB, offline similarity search is disabled for that package and the app falls back to online similarity search with queued processing.

10.3 Online mode (default fallback)

- When internet is available, upload the compressed photo (or its feature representation) to the server for similarity search.
- Return ranked results with exhibitor details and thumbnails.
- When internet is not available, store the request locally and run it during the next stable sync window (for example, hotel Wi-Fi).

11. Data volume, downloads, and storage strategy

Canton Fair scale makes it unrealistic to download a full image catalog for offline browsing on every device. The strategy is: always provide a compact booth index; download images on demand by phase, hall, favorites, and interaction history.

11.1 Image volume calculation (illustrative)

Assumption: 300,000 product images (1 image per product). Actual catalogs may include multiple images per product, which multiplies the totals.

Average thumbnail size Total for 300,000 images

5 KB ~ 1.5 GB

10 KB ~ 3.1 GB

15 KB ~ 4.6 GB

25 KB ~ 7.7 GB

50 KB ~ 15.4 GB

Conclusion: downloading all thumbnails for every product is too large for most visitor devices. The platform must use selective caching and on-demand downloads.

11.2 Download packages (recommended)

- Always: compact booth index per phase (hall/booth, exhibitor name, categories, minimal metadata).
- Optional: offline hall map per phase (vector-based map and booth coordinates).
- Optional: favorites package (only booths and products saved by the visitor).
- Optional: nearby package (booths near those already visited or scanned).
- Thumbnails and full images: download only on demand and cache with size limits.

11.3 Visitor photo capture compression

- On capture: compress locally to a predictable maximum size and resolution suitable for supplier identification.
- Store locally first, upload during sync; allow a Wi-Fi only upload option.
- Keep original full-resolution photos optional and off by default to control storage.

12. China network compatibility and operational constraints

The entire solution must function in mainland China with variable connectivity. The design must avoid critical dependencies on services that are often unavailable or unstable in that environment.

12.1 Requirements

- Host back-end services and static assets on infrastructure that is reliably reachable from mainland China.
- Use a CDN strategy that works well within China for app assets and catalog images.
- Provide offline-first behavior for scanning, note taking, and request creation.
- Provide notification fallbacks: push where available; otherwise in-app polling and email notifications.
- App distribution strategy must account for Android environments without reliable access to Google-based services.

12.2 Reliability and sync

- All critical actions create local events first; server sync is a later step.
- Sync must be resumable, with retries, backoff, and clear user feedback.
- Conflicts should be rare; where they occur, resolve by event order and explicit server acknowledgements.

13. Adoption loops and incentives (Canton Fair specific)

A core objective is to create a chain reaction: each real-world interaction triggers an invitation for the other party to join the app, without becoming spam.

13.1 Visitor -> exhibitor invitation

- If a visitor connects to an exhibitor that has not claimed their booth profile, the exhibitor receives an invitation to claim the booth and view inquiries.
- The invitation contains a claim link and explains the immediate value: booth page, QR codes, inquiry inbox, and catalog upload.

13.2 Exhibitor -> visitor invitation

- If exhibitor staff scans a visitor QR or business card, the visitor receives an SMS and email invitation to install the app and access the exchanged information.
- If the visitor already has the app, the connection is created instantly and appears in both accounts.

13.3 Anti-spam controls

- Rate limits per staff member and per booth.
- Only allow invitations after an actual interaction (scan, hall/booth connect, or business card scan).
- Clear opt-out options for invitations and notifications.

13.4 Participation incentives

- Verified exhibitor label for claimed booths with completed profiles.
- Higher visibility in in-app listings for exhibitors with fast response and complete catalogs.
- Response time indicators to encourage timely follow-up.

14. Reporting and dashboards

14.1 Admin dashboards

- Adoption funnel per phase: invited exhibitors -> claimed -> catalog uploaded -> inquiries received -> responses sent.
- Visitor funnel per phase: installs -> registrations -> connects -> inquiries -> replies received.
- Operational metrics: sync failures, average upload sizes, crash analytics, message delivery rates.
- Quality metrics: response time distributions, inquiry closure rates, and active booth coverage.

14.2 Exhibitor analytics

- Inquiry volume by day and by phase.
- Response times by staff member and by remote team.
- Top requested products and top requesting regions (when available).

14.3 Optional organizer analytics (aggregated only)

- Activity levels per hall and phase (scan volume, inquiry volume).
- Category interest trends over the phase timeline.
- Average exhibitor responsiveness (only as aggregated numbers).
- Optional: pre-event and post-event visitor segmentation (aggregated only) to assess relative commercial value of visitor segments (also available in event organizer admin, if a partnership is in place).
- Optional: phase-to-phase comparison dashboards (engagement, responsiveness, category interest trends) (also available in event organizer admin, if a partnership is in place).
- Optional: exhibitor preparedness indicators at hall or category level (profile completeness, catalog readiness, response behavior) (aggregated only) (also available in event organizer admin, if a partnership is in place).

15. Implementation phases

The roadmap is structured to reach a usable MVP for the next Canton Fair phase, then expand capabilities without breaking offline reliability.

15.1 MVP (phase-ready)

- Visitor registration + personal QR.
- Booth lookup offline (hall + booth) using the phase booth index.
- QR connect (booth and staff).
- Business card scan offline (CamCard).
- Booth dossiers with photos and notes.
- RFQs: catalog RFQ (if catalog exists) and photo RFQ (always).
- Exhibitor claiming + basic profile + staff QR generation.
- Exhibitor inbox (email + portal), with response flow.
- Offline queue + sync manager.

15.2 Phase 2 (team workflows and translation)

- Visitor remote team sharing, tasks board, supplier comparison.
- Exhibitor team inbox with assignment, internal notes, SLA reminders.
- Quick reply templates and terminology control.
- Chat and email translation (store original + translated versions).
- Catalog bulk import and minimum viable catalog generator.

15.3 Phase 3 (similarity search and advanced dashboards)

- Similarity search: offline only if per-phase package <= 40 MB, otherwise online-only fallback with queued sync.
- Optional organizer portal (aggregated only).
- Advanced analytics for admin and exhibitors.

16. Non-functional requirements

16.1 Security

- QR codes contain tokens, not personal data. Tokens must be revocable and time-limited where possible.
- Transport encryption for all network calls; secure storage of tokens on device.
- Audit logs for admin operations and critical changes (claim, role changes, exports).

16.2 Privacy and consent

- Visitors control what profile fields are shared when connecting.
- Explicit consent for invitations and marketing-style notifications.
- Clear data export and account deletion policies (operations-defined).

16.3 Performance

- QR scan-to-profile should feel instant (target: < 1 second on-device open; server data can load progressively).
- Offline booth lookup must work without network and return within milliseconds from the local index.
- Sync must tolerate unstable networks and resume without user intervention.

16.4 Localization

- Language selection during registration; per-thread language override for translation.
- Store session and phase dates and times in local device timezone, but keep official schedule in a fixed reference timezone in the back end.

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Appendix A. Key objects (developer quick view)

Object Key fields (example)

Session sessionId, name (Spring/Autumn), year, published

Phase phaseId, sessionId, number (1-3), startDate, endDate, published

Hall hallId, name, mapRef

Booth boothId, hallId, boothNumber, phaseId, coordinates (optional)

Exhibitor exhibitorId, companyName, categories, contactInfo, claimStatus

Staff staffId, exhibitorId, name, role, qrToken

Visitor visitorId, name, company, email, phone, language

Connection connectionId, visitorId, exhibitorId, staffId(optional), createdAt

Inquiry inquiryId, connectionId, type, status, priority, assignedTo, payload

SampleRequest sampleId, inquiryId, status, shippingInfo

MessageThread threadId, connectionId, channel(chat/email), messages

Task taskId, ownerId, relatedObject, status, deadline

Attachment attachmentId, linkedTo, mediaType, storageRef, createdAt

End of document.