

AERRAI Website Development Master Plan

Complete Project Architecture & Implementation Guide

Project Overview

Company: Aerrai (homophone of Errai star system)

Purpose: Marketing website with dynamic content management for tech suite presentation

Theme: Deep space + glass morphism

Target: CEO-friendly content management without technical complexity

Architecture: Angular + Tailwind CSS + JSON-based CMS

Technical Foundation

Current Environment

- **Angular:** 20.1.4
- **Node:** 22.17.1
- **Tailwind CSS:** 3.4.17
- **Package Manager:** npm 10.9.2
- **Styling:** SCSS + Tailwind CSS (with PostCSS)

Key Dependencies

```
json
{
  "@angular/material": "^20.2.0",
  "@tailwindcss/forms": "^0.5.10",
  "@tailwindcss/typography": "^0.5.16",
  "immer": "^10.1.1",
  "lodash-es": "^4.17.21"
}
```

Project Architecture

Directory Structure

```
src/app/
  core/
    models/
      tech-suite.interface.ts
      company.interface.ts
      layout.interface.ts
    services/
      tech-suite.service.ts
      layout.service.ts
      content-management.service.ts
    guards/
      admin.guard.ts
  features/
    marketing/
      pages/
        homepage/
        tech-suite-detail/
        components/
          hero-section/
          tech-suite-grid/
          tech-suite-card/
          constellation-background/
          contact-section/
    admin/
      pages/
        dashboard/
        tech-suite-manager/
        layout-editor/
        company-settings/
        components/
          content-editor/
          layout-configurator/
          preview-panel/
    shared/
      components/
        base-card/ (existing)
        glass-modal/
        loading-spinner/
  assets/
```

```
.... └── data/  
.....   ├── tech-suites.json  
.....   ├── layout-config.json  
.....   └── company-info.json
```

Data Models & Interfaces

Core Tech Suite Model

typescript

```
export interface TechSuite {  
  id: string;  
  title: string;  
  subtitle: string;  
  icon: string;  
  priority: 'critical' | 'high' | 'medium' | 'low';  
  description: string;  
  detailedDescription?: string;  
  keyBenefits: string[];  
  features: TechSuiteFeature[];  
  domains: string[];  
  technologies?: string[];  
  cta: CallToAction;  
  media?: {  
    images: string[];  
    videos: string[];  
    demos: string[];  
  };  
  pricing?: PricingInfo;  
  testimonials?: Testimonial[];  
}
```

```
export interface TechSuiteFeature {  
  title: string;  
  description: string;  
  icon?: string;  
  importance: 'high' | 'medium' | 'low';  
}
```

```
export interface CallToAction {  
  primary: string;  
  secondary: string;  
  primaryAction: 'demo' | 'contact' | 'learn-more';  
  secondaryAction: 'info' | 'pricing' | 'case-study';  
}
```

Layout Configuration Model

typescript

```
export interface LayoutConfig {  
  ...  
  homepage: {  
    ...  
    sections: HomepageSection[];  
    theme: ThemeConfig;  
    animations: AnimationConfig;  
  };  
  ...  
  global: {  
    ...  
    navigation: NavigationConfig;  
    footer: FooterConfig;  
    responsive: ResponsiveConfig;  
  };  
}
```

```
export interface HomepageSection {  
  ...  
  id: string;  
  component: string;  
  visible: boolean;  
  order: number;  
  config: any;  
  ...  
  responsive: {  
    ...  
    mobile: any;  
    ...  
    tablet: any;  
    ...  
    desktop: any;  
  };  
}
```

```
export interface ThemeConfig {  
  ...  
  primaryColor: string;  
  secondaryColor: string;  
  accentColor: string;  
  backgroundStyle: 'gradient' | 'solid' | 'animated';  
  glassIntensity: 'subtle' | 'medium' | 'strong';  
  starField: {  
    ...  
    enabled: boolean;  
    ...  
    density: 'low' | 'medium' | 'high';  
    speed: 'slow' | 'medium' | 'fast';  
  };  
}
```

Company Information Model

typescript

```
export interface CompanyInfo {  
  name: string;  
  tagline: string;  
  logo: {  
    text: string;  
    image?: string;  
    animated: boolean;  
  };  
  contact: {  
    email: string;  
    phone: string;  
    address?: string;  
    socialMedia: SocialMediaLinks;  
  };  
  about: {  
    mission: string;  
    vision: string;  
    values: string[];  
    founded?: string;  
    team?: TeamMember[];  
  };  
}
```

Development Phases

Phase 1: Foundation & Infrastructure (Current)

Status: Complete

- Angular environment setup
- Tailwind CSS configuration
- Deep space theme implementation
- Glass morphism utilities
- Responsive typography system
- Base card component integration

Phase 2: Core Services & Data Layer

Timeline: Next 2-3 days

- TechSuiteService implementation
- LayoutService for configuration management

- ContentManagementService for admin operations
- JSON data files creation
- HTTP interceptors for data handling
- Error handling and loading states

Phase 3: Marketing Website (Homepage)

Timeline: 1 week

- Constellation background component
- Hero section with Aerrai branding
- Tech suite grid component
- Enhanced tech suite cards (extending base-card)
- Contact/CTA section
- Mobile-first responsive implementation
- Animation system (subtle + dynamic blend)

Phase 4: Admin Portal Development

Timeline: 2 weeks

- Admin authentication guard (client-side protection)
- Admin dashboard with overview metrics
- Tech suite content editor with rich text
- Layout configurator with drag-and-drop
- Company settings management
- Real-time preview system
- JSON export/import functionality
- Bulk operations for content management

Phase 5: Advanced Features

Timeline: 1 week

- Advanced animations and micro-interactions
- SEO optimization and meta tags
- Performance optimization
- Accessibility enhancements (WCAG compliance)
- Browser compatibility testing
- Mobile optimization fine-tuning

Phase 6: Demo Request System (Future)

Timeline: TBD

- Contact form integration
 - Demo scheduling system
 - Email notification system
 - CRM integration options
 - Analytics and tracking
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Admin Portal Features

Content Management Capabilities

1. Tech Suite Management

- Add, edit, delete tech suites
- Rich text editor for descriptions
- Image upload and management
- Feature list management
- Priority and categorization

2. Layout Control

- Homepage section arrangement
- Component visibility toggles
- Responsive breakpoint settings
- Color scheme customization
- Animation intensity controls

3. Company Branding

- Logo and tagline editing
- Contact information management
- Social media links
- About section content
- Mission/vision statements

4. Visual Configuration

- Theme color picker
- Glass morphism intensity

- Star field animation settings
- Typography scale adjustments
- Spacing and layout density

Admin User Experience

- **Simple Interface:** CEO-friendly with minimal technical jargon
 - **Visual Feedback:** Real-time preview of changes
 - **Undo/Redo:** Change history with rollback capability
 - **Auto-save:** Prevents data loss
 - **Export Options:** Backup configuration as JSON
 - **Mobile Admin:** Tablet-friendly admin interface
-

Current Tech Suite Content

1. Technology as a Service (TaaS)

- **ID:** `taas`
- **Priority:** `high`
- **Icon:** `cloud_sync`
- **Key Features:** End-to-end tech solutions, scalable infrastructure, expert team access
- **Domains:** Software Development, Cloud Infrastructure, DevOps, System Integration

2. Data Analytics Console (DAC)

- **ID:** `dac`
- **Priority:** `medium`
- **Icon:** `analytics`
- **Key Features:** Custom dashboards, multi-domain analytics, AI-powered insights
- **Domains:** Financial Analytics, Operational Metrics, Procurement Intelligence

3. Finance and Strategy Consulting

- **ID:** `fsc`
- **Priority:** `critical`
- **Icon:** `trending_up`

- **Key Features:** Business assessment, strategic planning, cross-domain solutions
 - **Domains:** Management Consulting, Financial Strategy, Supply Chain Optimization
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Technical Implementation Notes

State Management Strategy

- **Services:** BehaviorSubject-based reactive state
- **JSON Files:** Single source of truth for content
- **In-Memory Updates:** Real-time editing with persistence
- **Change Detection:** OnPush strategy for performance

Responsive Design Approach

- **Mobile-First:** Base styles for 320px minimum
- **Breakpoints:** 640px (sm), 768px (md), 1024px (lg), 1280px (xl)
- **Touch-Friendly:** 44px minimum touch targets
- **Content Priority:** Progressive disclosure on smaller screens

Animation Philosophy

- **Subtle Base:** Gentle hover effects, smooth transitions
- **Dynamic Accents:** Floating elements, constellation rotation
- **Performance:** CSS transforms over JavaScript animation
- **Accessibility:** Respect prefers-reduced-motion

Performance Optimization

- **Lazy Loading:** Route-based code splitting
 - **Image Optimization:** WebP format with fallbacks
 - **Bundle Analysis:** Webpack bundle analyzer integration
 - **Caching Strategy:** HTTP caching headers for static assets
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Deployment Strategy

Development Workflow

```
bash
```

```
# Development server
ng serve --open

# Production build
ng build --configuration production

# Admin portal route
/admin-portal (protected client-side)
```

Static Hosting Options

- **Netlify**: Drag-and-drop deployment with form handling
- **Vercel**: Git-based deployment with preview URLs
- **GitHub Pages**: Simple static hosting
- **AWS S3**: Enterprise-grade hosting with CloudFront

Content Update Process

1. CEO accesses `/admin-portal`
2. Makes changes through visual interface
3. Changes saved to JSON files
4. Automatic rebuild triggers (if using Git-based deployment)
5. New version deployed automatically

File Management Strategy

JSON Data Architecture

```
assets/data/
├── tech-suites.json ..... # Core tech suite content
├── layout-config.json ..... # Layout and theme settings
├── company-info.json ..... # Branding and contact info
└── backups/           # Automatic backups
    ├── tech-suites-YYYYMMDD.json
    └── layout-config-YYYYMMDD.json
```

Admin Portal Persistence

- **Local Storage**: Temporary edits and drafts

- **File System Access:** Future API integration for direct file updates
 - **Export/Import:** JSON download/upload for manual deployments
 - **Version Control:** Git integration for advanced workflows
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Security Considerations

Client-Side Protection

- **Route Guards:** Basic admin route protection
- **Environment Variables:** API keys and sensitive config
- **Input Validation:** XSS prevention in content editor
- **Content Security Policy:** Script injection prevention

Future Enhancements

- **Server-Side Authentication:** OAuth or JWT implementation
 - **Role-Based Access:** Different permission levels
 - **Audit Logging:** Track all content changes
 - **API Security:** Rate limiting and CORS configuration
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Success Metrics

Technical KPIs

- **Page Load Speed:** < 3 seconds on 3G
- **Lighthouse Score:** 90+ across all categories
- **Mobile Usability:** 100% Google Mobile-Friendly
- **Accessibility:** WCAG 2.1 AA compliance

Business KPIs

- **CEO Satisfaction:** Can update content without developer help
 - **Content Update Frequency:** Weekly updates without technical debt
 - **Demo Requests:** Trackable conversion metrics
 - **User Engagement:** Time on site and interaction rates
-

Next Immediate Actions

1. Run Service Generation Commands:

```
bash  
  
ng g s core/services/tech-suite  
ng g i core/models/tech-suite  
ng g c features/marketing/components/tech-suite-card  
ng g c features/marketing/components/tech-suite-grid  
ng g c features/marketing/pages/homepage
```

2. Create JSON Data File: [src/assets/data/tech-suites.json](#)

3. Implement TechSuiteService: Data loading and management

4. Build Homepage Components: Starting with tech-suite-grid

5. Test Responsive Design: Ensure ultra-responsive across all devices

Contact & Handoff Information

Current Status: Phase 1 Complete, Phase 2 Ready to Begin

Key Files Modified: [tailwind.config.js](#), [src/styles.scss](#)

Next Developer Notes: Focus on data service implementation first, then component development

CEO Requirements: Simple content editing, visual feedback, mobile-friendly admin

Technical Debt: None currently, maintain clean architecture throughout development

This document serves as the complete project blueprint and can be used to onboard new developers or continue development in new conversation contexts.