

TECHSWAP - STAGE 2

Platform, Technical Stack & Security Plan

IT 310 E-Commerce Project

Group Member: Donovan McHenry

Date: January 4, 2026

EXECUTIVE SUMMARY

TechSwap will use Wix Business Unlimited as our e-commerce platform. This decision is based on rapid setup (2-4 weeks), built-in marketplace features, automatic security, and cost-effectiveness (\$324/year). This document addresses all Stage 2 requirements including platform justification, technical architecture, security strategy, hosting details, and wireframes.

1. PLATFORM JUSTIFICATION AND FIT FOR BUSINESS MODEL (30 pts)

1.1 SELECTED CMS: WIX E-COMMERCE

We selected Wix for four strategic reasons:

Speed: Setup time is 30 minutes to 2 hours vs. 8+ hours for WordPress or Magento. Our 4-week project timeline requires rapid implementation.

Marketplace Capability: Built-in multi-vendor features enable our C2C model. Student sellers can register, list products, and manage orders without custom development.

Zero Coding Required: Drag-and-drop editor matches our team's skillset (some HTML/CSS knowledge, no PHP/backend experience).

All-Inclusive Cost: \$27/month includes hosting, SSL, CDN, security, and unlimited bandwidth. No surprise plugin costs or hosting fees.

1.2 PLATFORM COMPARISON

We evaluated four leading e-commerce platforms against our specific requirements:

WIX (SELECTED) - Overall Score: 9.1/10

- **Ease of Setup:** 10/10 - Fastest implementation, drag-and-drop editor, 30 min to 2 hours
- **Marketplace Support:** 9/10 - Built-in multi-vendor functionality with Wix Stores
- **Total Cost Year 1:** \$324 (8/10 for value)
- **Security:** 10/10 - Automatic SSL, PCI-compliant, daily backups included
- **Team Skill Match:** 10/10 - Zero coding required, visual editor
- **Scalability:** 7/10 - Handles 10K+ users but limited customization

Best For: Quick launch with limited technical resources (our situation)

WORDPRESS + WOOCOMMERCE - Overall Score: 7.1/10

- Ease of Setup: 6/10 - Requires hosting setup, plugin installation, 3-4 hours
- Marketplace Support: 8/10 - Excellent plugins available (Dokan, WC Vendors)
- Total Cost Year 1: \$200 (9/10 for value)
- Security: 6/10 - Manual SSL setup, requires security plugins
- Team Skill Match: 7/10 - Some PHP knowledge helpful
- Scalability: 8/10 - Very flexible and customizable

Best For: Teams with web development experience and time for customization

SHOPIFY - Overall Score: 7.3/10

- Ease of Setup: 8/10 - Easy to use, 1-2 hours setup
- Marketplace Support: 5/10 - Limited multi-vendor support, designed for B2C
- Total Cost Year 1: \$348 (7/10 for value)
- Security: 10/10 - Automatic SSL, PCI-compliant, excellent security
- Team Skill Match: 9/10 - User-friendly, minimal coding needed
- Scalability: 9/10 - Excellent for scaling retail businesses

Best For: Single-vendor retail businesses looking to scale

MAGENTO - Overall Score: 6.4/10

- Ease of Setup: 3/10 - Complex installation, requires developers, 8+ hours
- Marketplace Support: 10/10 - Powerful multi-vendor capabilities
- Total Cost Year 1: \$600+ (4/10 for value)
- Security: 7/10 - Robust but requires manual configuration
- Team Skill Match: 3/10 - Requires PHP, MySQL, and server expertise
- Scalability: 10/10 - Unlimited customization for enterprise needs

Best For: Large businesses with dedicated IT teams

WINNER: WIX - Best combination of speed, ease of use, and built-in features for our project timeline and technical capabilities.

1.3 BUSINESS MODEL FIT

TechSwap Requirements Met by Wix:

- ✓ Multi-Vendor Marketplace: Wix Stores supports unlimited sellers with individual dashboards
- ✓ Student Verification: Can add .edu email requirement via Wix Velo custom code
- ✓ Reviews & Ratings: Built-in 5-star rating system
- ✓ Messaging: Built-in chat between buyers and sellers
- ✓ Commission System: Automatic 8% fee calculation
- ✓ Mobile-First: Automatic responsive design (70% of students shop on mobile)
- ✓ Payment Processing: Stripe and PayPal integration included

- ✓ Campus Features: Can add campus selector and pickup locations

2. TECHNICAL ARCHITECTURE AND TOOL INTEGRATION (30 pts)

2.1 FRONTEND TECHNOLOGIES

Core Technologies (Automatic via Wix):

- HTML5: Semantic markup, SEO-optimized
- CSS3: Responsive design with Flexbox/Grid
- JavaScript (ES6): Interactive features, form validation, AJAX
- Implementation: Drag-and-drop editor (no manual coding)

Design Template:

- Base: "Electronics Superstore" Wix template
- Customization: Blue/orange color scheme, Inter font, custom TechSwap logo
- Mobile: Automatic responsive breakpoints

2.2 PLUGINS AND INTEGRATIONS

Essential Wix Apps:

E-Commerce:

1. Wix Stores (Built-in, \$0) - Product catalog, inventory, orders
2. Wix Payments (\$0 Wix fees) - Stripe backend, credit cards, Apple/Google Pay

Communication:

3. Wix Chat (Free) - Live chat support
4. Wix Automations (Free) - Abandoned cart emails, order updates

Marketing:

5. Email Marketing (Included) - 10,000 emails/month, newsletters
6. SEO Wiz (Free) - Meta tags, sitemaps, Google integration

Social:

7. Product Reviews (Free) - Star ratings, written reviews, photos
8. Social Feed (Free) - Instagram integration

Cost: \$0 (all free or included in Business plan)

2.3 BACKEND DESIGN

Database (Wix Data - Cloud NoSQL):

Core Collections:

- Products: productID, title, price, condition, images, sellerID, campus
- Users: userID, email, name, campus, verified, rating, role (buyer/seller/admin)
- Orders: orderID, buyerID, sellerID, productID, price, commission, status
- Reviews: reviewID, orderID, rating, comment, date
- Messages: messageID, senderID, recipientID, text, timestamp

Custom Collections:

- StudentVerifications: .edu email, student ID photo (encrypted), status
- CampusLocations: campus name, pickup buildings, addresses, hours

Features:

- Real-time sync across devices
- Daily automatic backups
- AES-256 encryption at rest
- No manual database management needed

2.4 SHOPPING CART SYSTEM

Cart Features:

- Add to cart from product page
- Persistent cart for logged-in users (saved to database)
- Guest checkout available
- Mini-cart dropdown in header
- Price breakdown: Item + 8% TechSwap fee + Shipping
- Abandoned cart recovery emails (24 hours, 72 hours)

Checkout Flow:

1. Review cart items
2. Select pickup (free) or shipping (\$15)
3. Payment method (card or PayPal)
4. Place order
5. Confirmation email sent

2.5 PAYMENT PROCESSING

Gateways:

- Primary: Wix Payments (Stripe) - Cards, Apple Pay, Google Pay
- Secondary: PayPal
- Fees: 2.9% + \$0.30 per transaction (standard)
- Wix Fee: 0% (on Business Unlimited plan)

Escrow System:

1. Buyer pays → Funds held by TechSwap
2. Seller ships/arranges pickup
3. Buyer confirms receipt
4. Funds released to seller (minus 8% commission)
5. Payout to seller's bank in 2 days

2.6 CUSTOM FEATURES (Wix Velo)

We'll build these using Wix's low-code platform:

1. Student Email Verification
 - Validate .edu email addresses
 - Send verification link
 - Grant seller permissions after verification
2. Campus Filter
 - Filter products by selected campus
 - Show only nearby listings
3. Commission Calculator
 - Auto-calculate 8% TechSwap fee
 - Display seller net earnings
4. Condition Pricing Suggestions
 - Suggest prices based on condition grade (A/B/C/D)

Implementation: JavaScript in Wix Velo (low-code, no backend server needed)

3. SECURITY AND PRIVACY STRATEGY (10 pts)

3.1 SSL/TLS ENCRYPTION

Certificate:

- Type: Let's Encrypt SSL (free, auto-renewing every 90 days)
- Encryption: 256-bit AES, TLS 1.3 protocol
- Coverage: Entire site forced to HTTPS
- Implementation: Automatic (enabled by default on Wix)

Benefits:

- Encrypted data transmission
- Browser padlock icon (builds trust)

- Required for payment processing
- SEO boost (Google ranks HTTPS higher)

3.2 PAYMENT SECURITY (PCI DSS COMPLIANT)

Zero Card Storage:

- TechSwap NEVER stores credit card numbers, CVV, or expiration dates
- Stripe tokenizes all payment data
- Payment forms loaded from Stripe servers (iframe)
- We only receive transaction confirmation tokens

PCI Compliance:

- Level: SAQ A (simplest level)
- Wix is PCI Level 1 certified
- We inherit compliance by using Wix Payments

Fraud Prevention:

- Address Verification Service (AVS)
- CVV verification required
- 3D Secure authentication
- Velocity checks (transaction limits per card)
- Manual review for orders over \$1,000

3.3 ACCOUNT PROTECTION

Password Security:

- Minimum 8 characters, letters + numbers required
- Common passwords blocked
- Bcrypt hashing (industry standard)
- Password strength meter shown

Login Protection:

- CAPTCHA after 3 failed attempts
- Account lockout after 5 failed attempts (30 min)
- Email alerts for new device logins
- Session timeout: 24 hours inactivity

Two-Factor Authentication:

- Optional for users (recommended for sellers)
- SMS codes or authenticator app
- Required for admin accounts

3.4 DATA PRIVACY

Student Data Protection:

- Student ID photos encrypted (AES-256)
- Auto-deleted after verification (30 days)
- Admin-only access
- .edu emails hashed in database

Privacy Compliance:

- GDPR compliant (EU users)
- CCPA compliant (California users)
- Privacy policy published
- Cookie consent banner
- Right to delete account (data purged in 30 days)
- Right to export data (download in JSON)

3.5 PLATFORM SECURITY (WIX INFRASTRUCTURE)

Automatic Protections:

- DDoS protection (Cloudflare)
- Web Application Firewall (WAF)
- SQL injection prevention
- XSS protection
- Daily malware scans
- 99.9% uptime guarantee

Backups:

- Site: Continuous (every publish)
- Database: Daily automatic
- One-click restore to any version
- Unlimited version history

4. HOSTING PLAN AND DOMAIN SETUP (10 pts)

4.1 HOSTING PROVIDER: WIX (FULLY MANAGED)

Infrastructure:

- Cloud Platform: Google Cloud + AWS
- CDN: Cloudflare (100+ edge servers globally)
- Auto-scaling servers
- Multi-region redundancy

4.2 PLAN: BUSINESS UNLIMITED

Storage: 35 GB SSD

- Expected usage: ~15 GB (product images, site files, database)
- Headroom: 20 GB remaining (141% buffer)

Bandwidth: Unlimited

- No caps or overage fees
- Estimated usage: 100 GB/month (10,000 visitors)
- Wix handles traffic spikes automatically

Included Features:

- Free domain year 1 (www.techswap.io)
- Free SSL certificate (automatic)
- 0% Wix transaction fees
- \$300 ad vouchers (Google, Facebook)
- Email marketing (10,000/month)
- 24/7 support (phone, chat, email)
- Remove Wix branding

Cost: \$27/month = \$324/year

4.3 DOMAIN STRATEGY

Domain: www.techswap.io

- Extension: .io (tech startup signal)
- Cost: Free year 1, \$8.99/year after
- DNS: Cloudflare (auto-configured)
- Privacy: WHOIS anonymization
- Emails: team@techswap.io, support@techswap.io

4.4 PERFORMANCE

Optimizations (Automatic):

- Lazy loading images
- Image compression (WebP format)
- Minified CSS/JavaScript
- Browser caching
- CDN distribution

Expected Metrics:

- Desktop load: < 3 seconds
- Mobile load: < 4 seconds
- Google PageSpeed: 85+ score

4.5 SCALABILITY

Growth Plan:

- Phase 1 (1-3 months): 100-200 users, 1 campus - Current plan
- Phase 2 (4-6 months): 500-1K users, 3 campuses - Current plan
- Phase 3 (7-12 months): 2K-5K users, 10 campuses - May upgrade to VIP
- Phase 4 (Year 2+): 10K+ users, 25+ campuses - Enterprise or migrate

Wix auto-scales servers, no code changes needed.

5. WIREFRAME AND FUNCTIONAL LAYOUT PLAN (10 pts)

5.1 SITE STRUCTURE

Homepage → Browse/Shop → Product Detail → Cart → Checkout → Confirmation

↓
Sell (Verification → Dashboard → Add Product)

↓
Account (Profile, Orders, Messages, Settings)

5.2 KEY PAGES (See attached wireframe PDFs)

Homepage:

- Header: Logo, campus selector, search, cart, account
- Hero: "Find Your Next Device" with search bar
- Categories: Laptops, Phones, Tablets, Audio, Gaming (icon grid)
- Featured products (4-column grid desktop, 2-column mobile)
- How It Works (3 steps)
- Footer: Links, social media

Product Listing:

- Left sidebar: Filters (category, price, condition, campus)
- Product grid: Image, title, price, condition badge, rating
- Sort: Relevance, price, newest, rating
- Mobile: Filter drawer, 2-column grid

Product Detail:

- Image gallery (main + thumbnails, zoom)
- Product info: Title, price, condition, seller card
- Actions: Add to Cart, Make Offer, Message Seller
- Tabs: Description, specs, shipping, reviews
- Similar products carousel

Cart:

- Item list: Image, title, seller, price, remove
- Order summary: Subtotal, 8% fee, shipping, total
- Proceed to Checkout button

Checkout:

- Step 1: Pickup (free) or ship (\$15)
- Step 2: Payment (card or PayPal)
- Step 3: Review order
- Step 4: Confirmation

Seller Dashboard:

- Stats: Active listings, sales, earnings, rating
- Add Product button
- Listings table (edit, delete)
- Recent orders
- Messages inbox

5.3 MOBILE DESIGN

Mobile-First Approach:

- Vertical layouts
- Touch-friendly buttons (min 44px height)
- Hamburger menu
- Swipeable product images
- Bottom navigation (Home, Search, Sell, Messages, Account)
- Apple Pay / Google Pay support

6. IMPLEMENTATION TIMELINE

Week 1: Setup

- Sign up for Wix Business Unlimited
- Register techswap.io domain
- Install template and customize design
- Configure payment methods

Week 2: Features

- Set up multi-vendor marketplace
- Create product categories
- Build student verification flow
- Test seller registration

Week 3: Content

- Add 20-30 sample products
- Write copy (About, FAQ, How It Works)
- Create graphics and icons
- Mobile optimization testing

Week 4: Launch Prep

- Complete purchase flow testing (sandbox payments)
- Security audit (SSL, payment forms)
- Create user guides (seller manual, buyer FAQ)
- Final QA and bug fixes

7. TOTAL COST BREAKDOWN

First Year:

- Wix Business Unlimited: \$324/year
- Domain: \$0 (free year 1)
- SSL: \$0 (included)
- Plugins: \$0 (all free)
- Email: \$0 (included 10K/month)
- Total: \$324

Year 2+:

- Wix: \$324/year
- Domain renewal: \$9/year
- Total: \$333/year

Payment Processing Fees (Variable):

- 2.9% + \$0.30 per transaction (Stripe standard)
- Example: \$100 sale = \$3.20 processing fee

CONCLUSION

Wix Business Unlimited provides TechSwap with a comprehensive, secure, and rapid-deployment platform that meets all project requirements:

- ✓ Platform Justification: Fastest setup, built-in marketplace, matches team skills
- ✓ Technical Architecture: Modern stack (HTML5/CSS3/JS), robust plugins, scalable backend
- ✓ Security: Enterprise-level (SSL, PCI-compliant, automatic protections)
- ✓ Hosting: All-inclusive, unlimited bandwidth, 99.9% uptime
- ✓ Wireframes: Mobile-first design, intuitive user flows

Total Setup Time: 4 weeks

Total Cost Year 1: \$324

Our Wix-based architecture enables a successful launch while maintaining flexibility for future growth across multiple campuses.

REFERENCES

Statista. (2023). Mobile commerce percentage of e-commerce sales. Retrieved from [statista.com](https://www.statista.com)

Wix.com. (2024). Business Unlimited Plan Features. Retrieved from [wix.com/ecommerce](https://www.wix.com/ecommerce)

PCI Security Standards Council. (2024). PCI DSS Quick Reference Guide. Retrieved from [pcisecuritystandards.org](https://www.pcisecuritystandards.org)

WIREFRAME IMAGES (ATTACHED)