

The Tuck School at Dartmouth

Evaluating Web 2.0 Innovations in E-Commerce

A Framework for Future Development

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Introduction

The e-commerce retail channel is constantly evolving as new ideas and business models emerge to challenge established players. Web-based businesses are inherently hyper-competitive, as a result of low barriers to entry, small capital investment requirements, and the resulting small size hurdle that is required to be profitable. This environment, along with the fast pace of web technology innovation seen in the last 10 years, has created a business platform that is in a constant state of improvement. The older e-commerce players must refresh their storefronts, strategies, and sales tactics to avoid being displaced by a leaner, more technologically advanced startup. This dynamic provides us, the industry observer, with an opportunity to gain insight into the drivers of customer value in the e-commerce platform, because successful startups with scarce resources allocate attention to the largest value drivers early in their product development roadmap while incumbents with more resources, time and experience focus on expanding their product portfolio to chase growth. We will explore how Web 2.0 technologies are adopted by e-commerce firms in the apparel and travel categories, what tradeoffs exist across fundamental factors in determining technology adoption (intrinsic, internal and external), what the foundational e-commerce site features are in the current environment vs. the category leading features, and what questions an e-commerce firm must ask itself as it builds its product roadmap. Our research indicates that companies should evaluate future innovations based on customer needs, organizational capabilities, and the technological base they are working from.

The two industry categories we chose, apparel and travel, provide us the opportunity to identify similarities and differences in the drivers of value across both a product and a service category. The two categories are highly competitive due to a relatively high volume of newly-funded startups, a diverse set of incumbents, both big and small, and three types of customer-facing firms: OEMs, Resellers, and Aggregators. We define the three types of firms by the following definitions:

OEMs	<ul style="list-style-type: none">• Provide an end product or service• Sell directly to the customer (not strictly a supplier)
Resellers	<ul style="list-style-type: none">• Do not provide an end product or service• Sell directly to the customer (purchase takes place on site)
Aggregators	<ul style="list-style-type: none">• Do not produce the product or service• Do not sell directly to the customer• Facilitate the interaction between the customer and the reseller or OEM through either a click-through or marketplace clearing like structure

Technology Innovation on the Web

Web technology has seen drastic advancement since the pop of the dot-com bubble in 2001, a generation often referred to as Web 2.0. The Web 2.0 is a generation of technology deployed on the web loosely associated by a set of principles that they help to fulfill, including a rich user experience, a high level of interaction, both user-to-user and application-to-application, and the radical

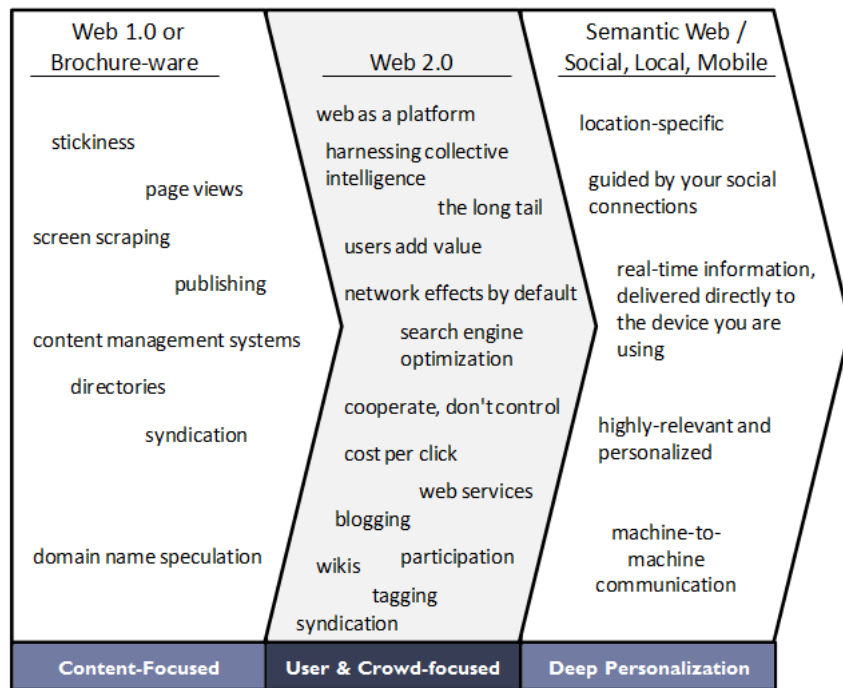
decentralization of the web. The Web 2.0 generation is most specifically seen in the development of AJAX, a collection of technologies defined as the following:

- standards-based presentation using XHTML and CSS
- dynamic display and interaction using the Document Object Model
- data interchange and manipulation using XML and XSLT
- asynchronous data retrieval using XMLHttpRequest
- and JavaScript binding everything together¹

What these technologies can help the web to do is to dynamically collect, analyze and synthesize larger amounts of data in a way that is highly relevant to the user. For e-commerce firms this creates:

- more competition, as it is cheaper to build web-based businesses that can compete more effectively with brick and mortar businesses
- easier, cheaper and faster methods to reach customers
- ability to create richer user experiences
- greater price transparency across firms
- more effective communication between customers and firms, and among customers

Terminology across Web Development Generations²

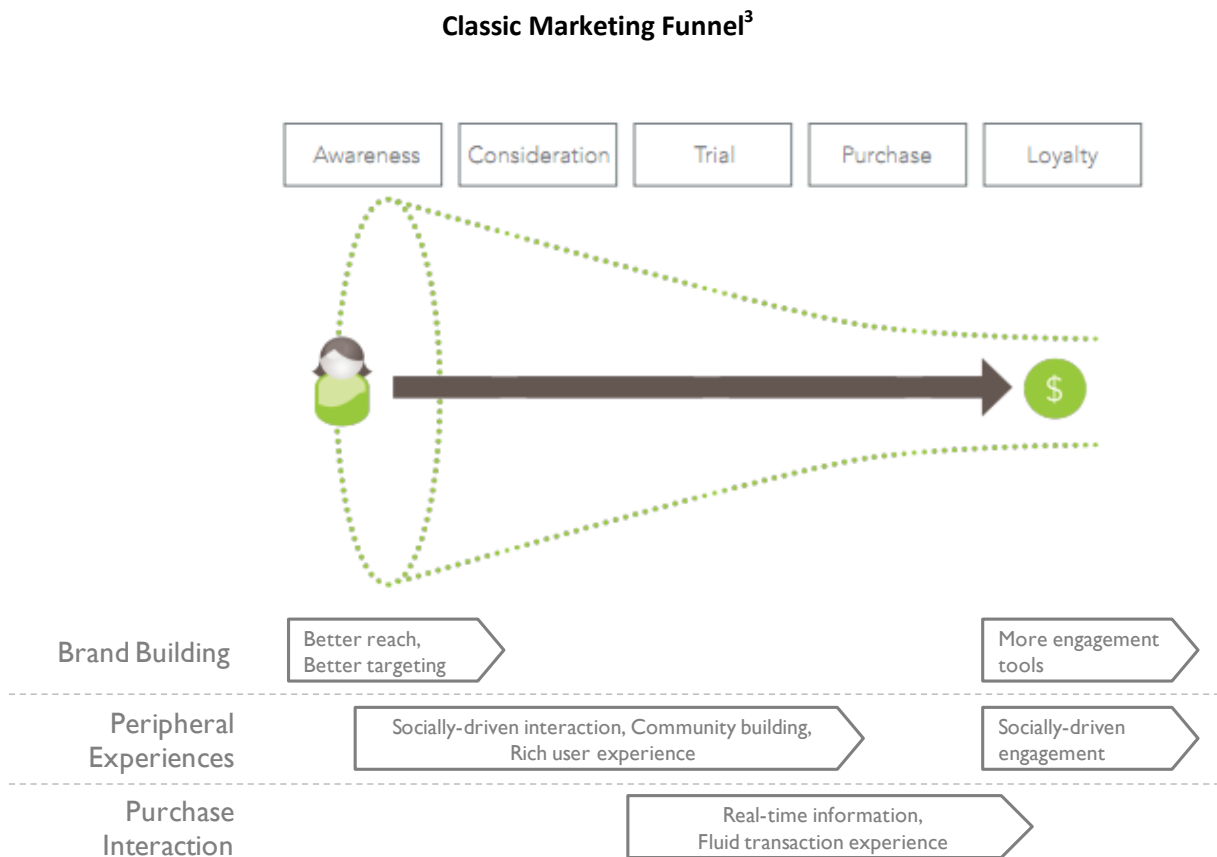


In analyzing the terms and phrases that describe the principles of each movement in the diagram above, there is a clear change in the focus of the web from content to the user/crowd and now to a

¹ What is Web 2.0. Tim O'Reilly. <http://oreilly.com/pub/a/web2/archive/what-is-web-20.html?page=1>.

² What is Web 2.0. Tim O'Reilly. <http://oreilly.com/pub/a/web2/archive/what-is-web-20.html?page=1>., Different Approaches to the Semantic Web. Tim O'Reilly. <http://radar.oreilly.com/archives/2007/09/economist-confu.html>.

personalized experience across the generations from Web 1.0 to Web 2.0 and most recently in the move toward the semantic web using social, local and mobile technologies. This technology innovation path is not just a path to a quicker, faster, and better story to be told by retailers; it is fundamentally an increase in the intensity of the focus on the customer relationship and the importance of delivering a good experience. The user-focused and crowd-focused nature of Web 2.0 technologies, and the intense personalization and relevancy-drivers now seen in the semantic web has its greatest impact on the brand building, consideration and trial aspects of the marketing funnel that are separate from the functions of product/service purchase and delivery. These aspects are identified in the diagram below:



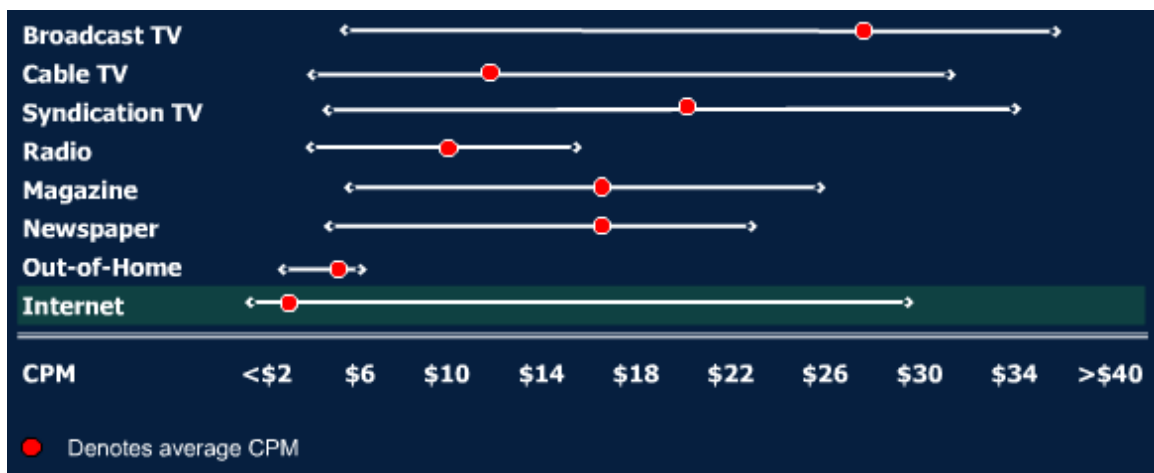
We will focus our discussion on the aspects of the marketing funnel that are impacted by Web 2.0 technologies on two areas: brand building, i.e., those activities that focus on building awareness and loyalty, and peripheral experiences, those activities that support the drive towards a purchase or reinforce a purchase decision but are not involved in the actual purchase itself. Examples of Web 2.0 features include personalized landing pages, user communities that exchange information on ratings and reviews of products, and aggregation services that allow you to create product and service comparison sites that have up-to-date inventory and pricing from various retailers.

³ The Digital Shopping experience: Today's Emerging Features are Tomorrow's Experiential Essentials. September 2008. Shop.org.

Brand Building

Web 2.0 technologies and semantic web technologies have improved the ability for firms to build awareness and drive loyalty. In the e-commerce channel, new technology has allowed for more reach and customer targeting to users who are part of a demographic with a high interest in your product, who have viewed products or sites related to your company, or who have friends who have purchased your product. This new technology has also allowed for more engagement, more viral marketing (or word-of-mouth), and better transaction conversion rates. Not only is it more effective to drive awareness and relevancy on the web, it is cheaper, where CPMs are ~1/10 of the cost for broadcast TV as shown in the chart below. The result of this lower cost makes it more competitive.

Advertising Cost per Thousand Impressions by Medium, 2009 / 2010⁴



The types of features that have driven greater awareness and loyalty are not only the greater reach and targeting of advertisements in online media, they extend into the following three categories:

- social interaction features that help to develop user communities and support viral marketing
- engagement features of developing loyalty where the interaction between the firm and the customer is more frequent, deeper, and richer
- fresh content where information is delivered in real-time with greater amount of relevancy from many different sources

Peripheral Experiences

Peripheral experiences that have been developed using Web 2.0 technologies were not possible previously with the size, scope and depth that they are today. One example of a peripheral feature is

⁴ Internet Trends 2010. Morgan Stanley Research. <http://www.slideshare.net/CMSummit/ms-internet-trends060710final>.

multi-dimensional search, where a user can build a bottom’s up or top-down search for a product, such as shirt in the correct size and in a preferred color that is available in a store less than five miles from the user’s home. Another example feature is deal or price watching, where a customer is delivered a promotion or notification when a price drops below a pre-set level for a user-specified group of products. These peripheral experiences help to drive consideration, trial and loyalty within the marketing funnel. The features exist within the following three categories:

- social interaction surrounding a product or service
- community building to build discussion around products
- a better user experience when deciding what to purchase, or finding the right product at the right price
- more socially-driven engagement with the products or services available

Analysis Approach

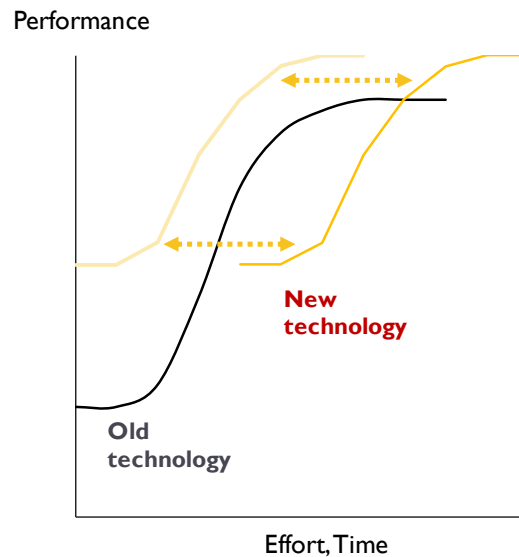
We have categorized the two areas that Web 2.0 technologies have had the greatest impact on the marketing funnel - brand building and peripheral experiences - into five feature set categories shown below with examples. In the empirical analysis section of the paper, we analyze how these feature sets are being utilized by various e-commerce players.

Mobile	Social	User Experience	Engagement	Fresh Content
<ul style="list-style-type: none"> • Native applications • Location-awareness 	<ul style="list-style-type: none"> • Social media presence • Customer communities 	<ul style="list-style-type: none"> • Multi-dimensional search • Personalized landing pages 	<ul style="list-style-type: none"> • Deal / price watch • Rewards programs 	<ul style="list-style-type: none"> • Blog content • User reviews and ratings

Innovation Value Creation

Innovation is not always broadly adopted at the introduction of the technology. This fact has been seen throughout history in stories of the invention of the telephone, the steam engine, or magnetic tape. This phenomenon is best explained using the S-curve concept. The S-curve, as shown below, states that a new technology takes a period of time for the performance to effort / time tradeoff to exceed that of an old technology, because the old technology continues to advance over time.

Technology S-Curve Concept⁵



It is not until the new technology exceeds the old technology in the performance to effort / time tradeoff that it will be adopted. The trick in this equation is that the performance to effort / time tradeoff is different for each firm, depending on the firm's capabilities, determined by intrinsic factors of product or service, and internal and external organizational circumstances. For example, startups with scarce resources might view a new technology with a higher performance to effort / time ratio than an old technology, due to unique technical know-how or a unique value proposition that employs the technology in a way that makes its performance greater. For incumbents with existing technology in place, the performance to effort/time ratio might be lower than the old technology, due to a lack of personnel in place with the knowledge or bandwidth to utilize the new technology or the costs of introducing new technology to an existing platform

The three types of factors that influence how the performance to effort / time ratio is placed on the grid are intrinsic, internal, and external⁶. The next three sections will explore the three factors that help to determine an e-commerce firm's product roadmap in context of a technology S-curve.

Intrinsic Factors Determining Innovation Adoption

Intrinsic factors in the type of product or service and the brand determine innovation adoption in e-commerce, because not all products or services have enough depth and value that they can create substantive conversations, and not all brands warrant or desire engagement and interaction.

To determine the value of utilizing Web 2.0 interaction and engagement tools at the product-level, we looked at two factors that determine the level of conversation that can happen, the pace of inventory

⁵ Innovation Ecosystems and the Pace of Substitution: Re-examining Technology S Curves. Ron Adner and Rahul Kapoor. June 2010.

⁶ Customer Power, Strategic Investment, and the Failure of Leading Firms. Clayton M Christensen and Joseph L. Bower. March 1996. Strategic Management Journal.

turnover and the unique or commodity nature of a firm’s product inventory. The table below outlines this dynamic, and outlines what type of interaction or engagement that can exist. For example, unique products with fast inventory turnover can only drive moderate product interaction as a result of the low depth of involvement that can be developed at the product level. Firms that sell unique, fast-moving styles, such as apparel retailer Xara, can realize greater performance to effort / time for features that support interaction at the brand level, but should not prioritize features that create user reviews for products.

		Product	
		Unique	Commodity
Inventory Turnover	Fast	Moderate Interaction – low depth, but viral and real-time <i>Examples: Flash Sales, Discount Deals, Fast Fashion</i>	Low Interaction – no depth, high value for repeat customers <i>Examples: Flights</i>
	Slow	High Interaction – high depth, high value <i>Examples: Traditional Fashion Collections, High-end Accommodations</i>	Moderate Interaction – some depth, moderate value for both new and repeat customers <i>Examples: Value / Budget Accommodations, Car Rentals</i>

To determine the value of utilizing Web 2.0 interaction and engagement tools at the brand level, we looked at the two components of brand resonance, relationship intensity and activity intensity of the brand. The table below outlines this dynamic, and outlines what type of interaction or engagement that can or should exist. For example, brands with high relationship intensity and high activity intensity can drive higher levels of interaction because the brand values and identity have high resonance with customers. Firms who have high resonance can utilize interaction with the customer base to further develop loyalty and engagement and drive growth, and should prioritize features that support that interaction.

		Relationship Intensity	
		Low	High
Activity Intensity	High	Moderate Interaction & Resonance - Brands can drive interaction with event or promotion-focus <i>Examples: Gap, Marriott</i>	High Interaction & Resonance – Brands interaction can build on the values and identity of brand and participate in the evolution and growth of the brand <i>Examples: Southwest, Gilt Groupe</i>
	Low	Low Interaction & Resonance – Brands need to build awareness and personality before interaction will drive value <i>Examples: Alaska Airlines, Air Tran</i>	Moderate Interaction & Resonance – Brands interaction can be built on top of the values, with interaction and community transcending the brand <i>Examples: Gucci, Ritz Carlton</i>

Internal Factors Determining Innovation Adoption

Internal factors often are the primary influence in a firm's technology adoption strategy, as decisions are often made based on what firms can do versus what they should do. Given this, we identified four primary internal factors to be used to determine the adoption of Web 2.0 technology:

- Position in value chain
- Firm capabilities, resources & knowledge
- Firm's web foundation
- Firm's strategy - organic vs. inorganic growth

Position in Value Chain

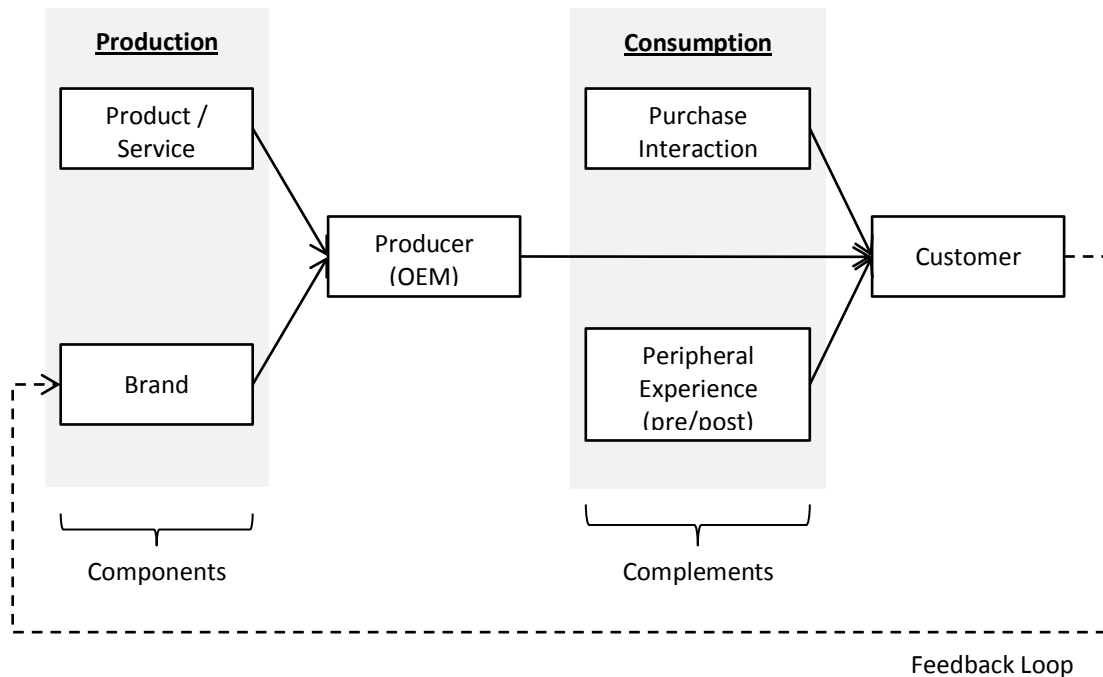
The primary internal factor we found that determines how Web 2.0 technologies are adopted in e-commerce is firm type. OEMs, who provide both final products and the consumption tools of e-commerce and resellers or aggregators who specialize in the consumption (purchase) tools for e-commerce. Looking through the lens outlined by Professor Adner in the paper "Value Creation in Innovation Ecosystems", e-commerce participates in both the production and consumption of products⁷.

OEM Technology Adoption Perspective

For OEMs, the relationship between the producer and customer is tightly connected. The producer sells directly to the customer, delivering to them a product or service combined with the expectations of the brand. In the consumption phase, the customer has an interaction with the OEMs product or service complements through the purchase interaction they provide, in our case an e-commerce site, as well as a peripheral experience both before and after the purchase that enhances or degrades the overall customer experience. The peripheral experience could be anything from involvement in a customer community to a formal rewards program. The feedback loop for OEMs results from the customer's encounter with the product / service, the brand, the purchase interaction and any peripheral experiences. This loop ties directly back into the producer's own brand. The interaction flow is outlined in the map shown below.

⁷ Value Creation in Innovation Ecosystems: How the structure of technological interdependence affects firm performance in new technology generations. Ron Adner and Rahul Kapoor. October 2009. Strategic Management Journal.

OEMs Interaction Map

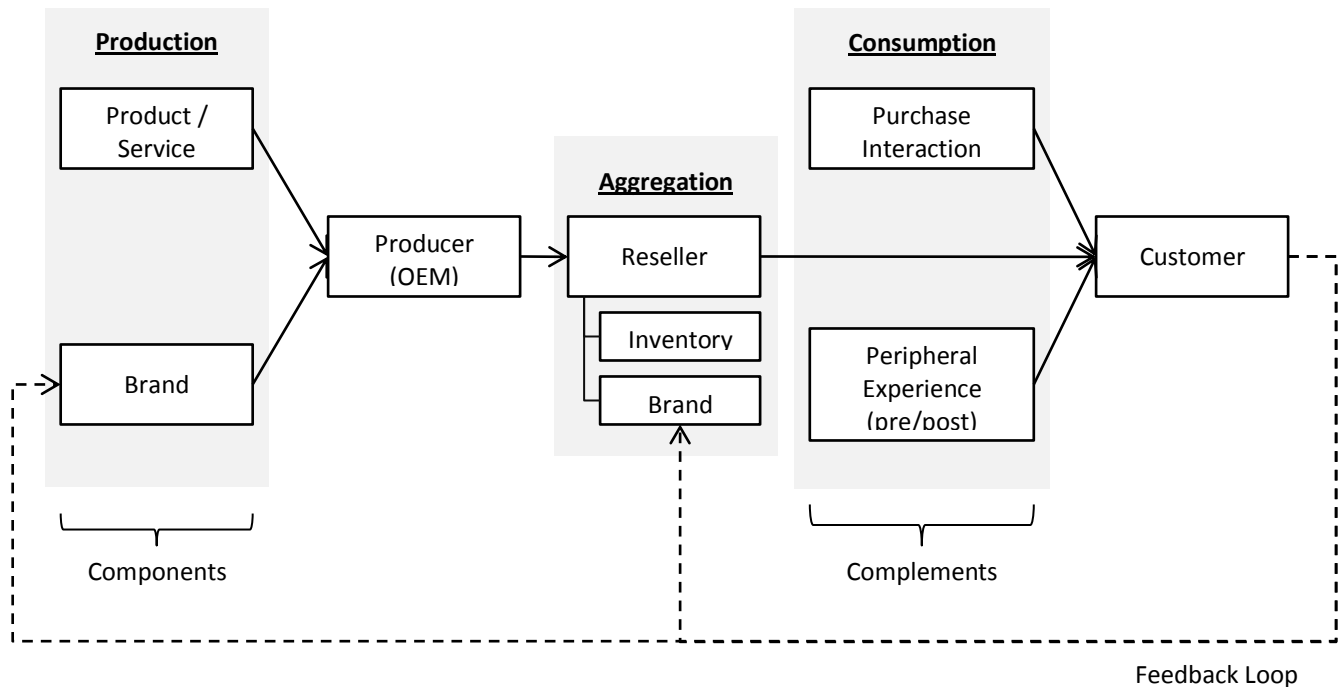


The result of this interaction flow is that the OEM is required to invest in four areas (product/service, brand, purchase interaction, peripheral experience) and must prioritize development based on what features will affect the holistic customer experience the most. Generally, OEMs core competencies lie within the product or service and their brand first, with the purchase interaction and peripheral experience, especially on the web, as secondary. Therefore, when looking at technology innovations that improve the consumption part of the customer interaction, the performance over effort / time ratio will look lower to an OEM than investments in their core competency.

Reseller Technology Adoption Perspective

For resellers, the relationship between the production and consumption side is disintegrated in the customer's eyes. The reseller takes responsibility for the purchase interaction and the peripheral experience, and separates it from the product or service and the associated brand. A feedback loop for resellers still exists with their own brands due to the formal purchase arrangement that takes place. The reseller still participates in the transaction, and therefore still has responsibility in making sure the product or service is delivered at the expectations of its own brand. For example, if a customer books a reservation on Orbitz for an American Airlines flight and encounters an issue with a lost reservation, then the reputations, or brand images, of both Orbitz and American Airlines are impacted negatively. This interaction flow is outlined in the map shown below.

Resellers Interaction Map

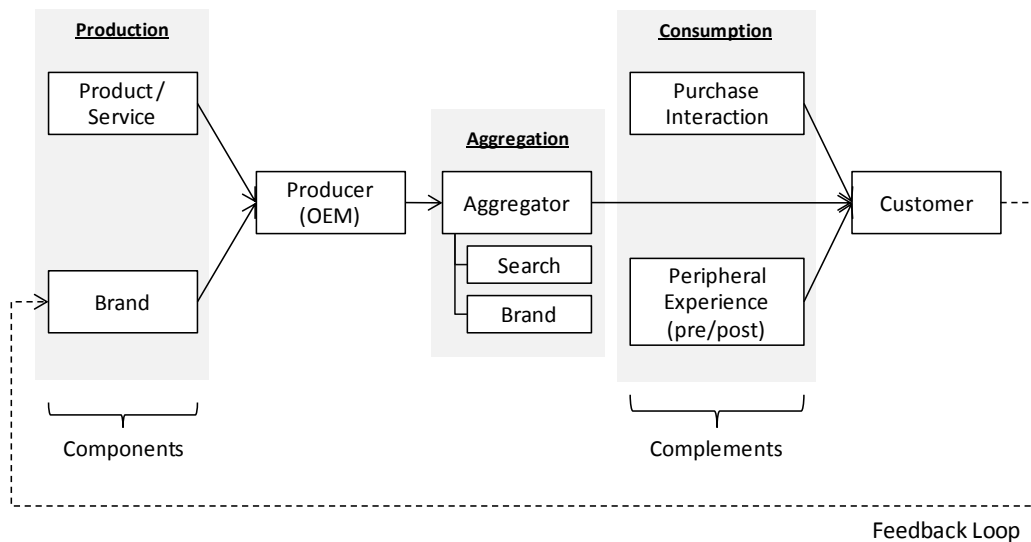


The result of this interaction flow is that the reseller is required to invest in four areas (brand, inventory, purchase interaction, peripheral experience) and must prioritize based on what will affect the holistic customer experience the most. Generally, a reseller's core competency lies within the purchase interaction and the brand, with the peripheral experience as a secondary priority. Therefore, when looking at technology innovations that improve the peripheral experience aspect of the customer interaction, such as search and site personalization, the performance over effort / time ratio will look to a reseller like a lower priority than investments in their core competency.

Aggregator Technology Adoption Perspective

For aggregators, the relationship between the production plus purchase interaction and the peripheral experience is disintegrated in the customer's eyes. The aggregator only takes responsibility for helping the customer to find what product or service and purchase option is best for them. The feedback loop for aggregators rarely exists after consumption, because the only interaction that takes place lies within the experience being delivered in the consumption phase. For example, if you search for a flight on Kayak, and problems happen with the issuing of a ticket or the plane, those problems do not reflect badly upon Kayak's reputation, unless they provided misinformation to you. Kayak's reputation, or brand, is only contained with the peripheral experience that it provides. This interaction flow is outlined in the map shown below.

Aggregators Interaction Map



The result of this interaction flow is that the aggregator is able to specialize in only three things (metadata search, brand, and the peripheral experience) and does not need to prioritize product in the same way as a reseller or OEM. Therefore, when looking at technology innovations that improve the peripheral experience part of the customer interaction, such as site personalization, the performance over effort / time ratio will look to an aggregator like an investment in their core competency, and will look much more attractive to them than it would to an OEM or reseller.⁸

Firm Capabilities, Resources & Knowledge

Technical, organizational and cultural capabilities impact a firm's ability to adopt new innovations. New innovations can have the most apparent performance advantages, but obstacles still stand in the way. First, basic technical knowledge of a new innovation often does not exist in organizations, as their resource focus is consumed by their current platform. The introduction of new technology causes firms to hire or train new staff, which causes adoption drag. In the shift to Web 2.0 and the semantic web, these organizational issues are extended beyond just the technical support staff to the marketing, customer support and public relations departments, because the technology and features are centered in the marketing funnel and in communications with customers. Dedicated resources are required to support these Web 2.0 features, and the organization must align itself to support the e-commerce channel across sales & marketing, production and customer support in order to deploy and take full advantage of the new Web 2.0 environment. Even more fundamental, these changes require cultural adaptability and significantly more openness in how firms develop and communicate their brand. For many firms with long histories of using only a one-way marketing and brand strategy, embracing the social and two-way communication nature of Web 2.0 technologies can be significantly challenging. The

⁸ It should be noted that some firms, like eBay, are taking a more active role in ensuring the quality of products delivered through their aggregation service. Such positioning does not neatly fit into our categorization.

technical knowledge, resources, organizational design and cultural obstacles present in a firm all impact the effort and time required to achieve superior performance from a new technology.

Firm's Web Foundation

Beyond the technical knowledge that is required, there are foundational technologies that are required to deploy Web 2.0 features. A typical Web 2.0 technology stack consists of:

- an operating system (e.g. Linux),
- database software (e.g. Apache)
- web server (e.g. MySQL)
- Right mix of web programming languages (e.g. XHTML + CSS, Doc Obj Model, XML, XML HttpRequest, & Javascript, PHP, Perl or Python)

To build features that have a heavy data component or require a complex mix of scripts, it is important to move beyond just the web presentation, display and interaction into a world of web application programming languages. The impact of an incorrectly coded e-commerce site is scalability and adaptability to future change.

Web 2.0 features also must be adopted in an evolutionary pattern for them to be effective. A Web 2.0 feature, such as a collaborative filtering model that provides suggestions for products, must first require a feature that collects user's preferences and demographic information and maps them to the products they purchase. Most Web 2.0 features need foundational data to support them, and that foundational data must often be collected using previously implemented features. Many web application product managers utilize a crawl, walk, run product evolution methodology, where they specifically identify what the end goal or run state is for a feature set, and they then identify what features need to be built in the crawl and walk stage that provide them the tools to achieve the customer experience. The trick, however, is that firms need to balance the need to build foundational features that help them get to the end goal without disrupting the customer experience with features that confuse, frustrate or annoy the users. The effort and time required to achieve superior performance from a new technology is impacted by a firm's ability to adopt the foundational technology and features and the pace they can evolve those features over time.

Firm Strategy - Organic vs. Inorganic Growth

A firm's growth strategy to a large degree determines both its focus and the issues and obstacles it faces. If a firm is pursuing an organic strategy, focused primarily on marketing and its product inventory, it will face issues in the expandability of its current platform and business model, any friction its current features have, and any limitations that its site has due to the current focus on its core demographic that causes issues with trying to sell to other demographics. If a firm is pursuing an inorganic growth strategy, integration issues and integration advantages, such as the network effect, will impact the scalability of its current platform and business model. These issues, due to the firm's current growth strategy, require it to invest capital in changing its current web platform and business model, or integrating acquisitions. Any investment in the firm's current platform will compete with investments in

new technologies. When there is this competition, the way that a firm views the S-curve will be impacted, as the timeliness, applicability, and performance to effort / time ratio of the new technology may be better or worse than investing in a current platform.

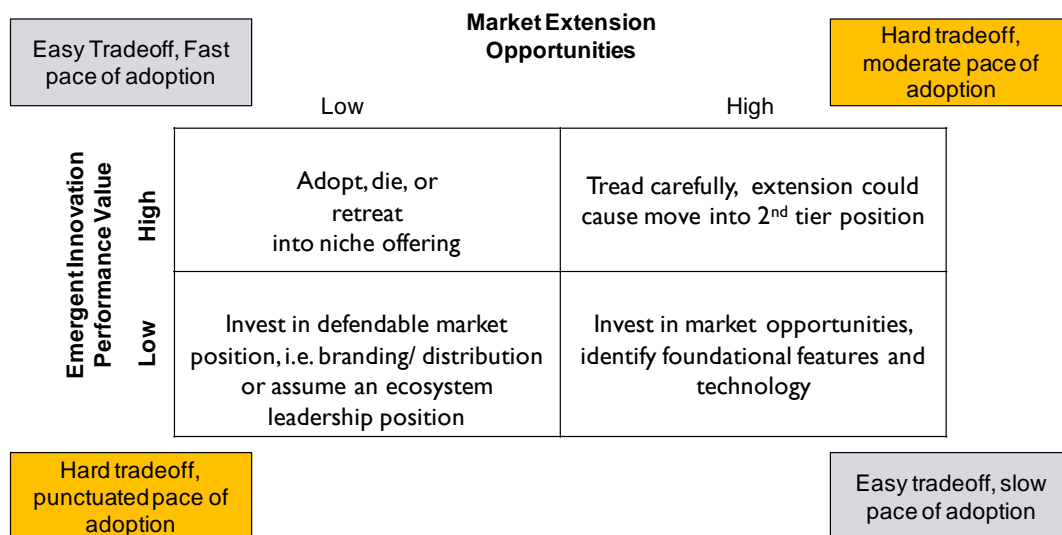
External Factors determining Innovation Adoption

External factors often play a large part in determining a firm’s technology adoption strategy, as decisions are often reactive as opposed to proactive. Given this, we identified two primary external factors to be used to determine the adoption of Web 2.0 technology:

- Competing opportunities, such as market extensions
- Competitive threats, from existing firms and new entrants

Competing Opportunities

The primary external factor that influences the adoption of innovation by e-commerce firms is the market opportunities that a firm has to pursue growth and the tradeoffs made in foregoing technological advancement⁹. When market extension opportunities are large, the comparative performance to effort/time ratio for a new technology may be lower than the performance to effort / time that can be gained from investing in a new market extension opportunity. This dynamic is outlined in the following chart with an indication of the strategy that can be taken the resulting pace of adoption.



⁹ Innovation Ecosystems and the Pace of Substitution: Re-examining Technology S Curves. Ron Adner and Rahul Kapoor. June 2010.

Competitive Threats

Competitive threats impact the way a firm looks at the performance possibilities of a new technology as well as the effort and time it will take to deploy them. For e-commerce firms generally, competitive threats are large for the following three reasons:

- Strong market positions in large markets built on momentary or reproducible assets (i.e. travel search UI), are ripe for startups and venture investment
- E-commerce categories are often highly fragmented, where market share is often won quickly and lost slowly
- Each computing cycle has seen even the largest market leaders fall and the smallest startups replace them

The threat of a new startup or drastic market share change forces firms to be active in understanding what new technology can overtake their position. Adopting new technology can be crucial to maintaining a firm's position at the leading edge in its industry. When a firm evaluates a new technology, it should see both its inherent performance advantages as well as the supplementary advantage of staying on the cutting edge of technology and design, and sources of potential competitor displacement.

Empirical Research on E-commerce Sites

Now that we have established the basic landscape for technological innovation on e-commerce websites, we will discuss some of the particular innovations that we encountered in the travel and apparel industries. We divided our company research across the two industries by company positions in the value chain: OEM, reseller, and aggregator. We consolidated the latter two categories into a "non-OEM" section as the features relevant to the two groups were quite similar. A list of the companies we surveyed can be found in Exhibit 1, and examples of our evaluation matrices can be found in Exhibits 2a and 2b.

Our aim in this section is to illustrate two levels of features that are found on e-commerce websites: "Table Stakes", which are features that the majority of the industry has implemented, and "Upping the Ante" which are features that are less common, but are driving increased traffic and revenue to the sites that have implemented them. The "Upping the Ante" features are those that serve as true differentiators in e-commerce and more importantly, are features that address important customer needs. The following discussion is not intended to be exhaustive, but instead to highlight important trends that we observed across a number of websites.

Table Stakes

The quality of execution for specific features can vary dramatically between two companies, but at the bare minimum we saw similar features within each of the research areas. Any company lacking these

features should focus on a ground-up assessment of their e-commerce platform prior to any efforts to develop cutting edge technologies for their website.

Travel

In the travel space, e-commerce is well developed. E-commerce penetration for non-business travel was 38% of the total US travel market in 2010.¹⁰ The basic expectations from consumers for OEM travel sites include a mobile-optimized website or application with reservation information, a booking centered user interface, fresh content with current deals, easy access to customer service (through multiple contact methods), and basic booking filters like price, day, and quality (# of stops for flights or room level for hotels). OEM travel companies can survive with slightly less refined user interfaces when compared to travel aggregators and resellers, as the OEMs can rely on the brand value of their own products and on consumer stickiness through rewards programs.

The travel space for non-OEM companies like Kayak, Orbitz, and Homeaway, is highly competitive. There are very low switching costs; consumers can freely move between different sites. Table stakes in the non-OEM space include the same mobile-optimized website or application with reservation information and booking centered user interface as for OEMs. However, with the resellers and aggregators, at minimum there must also be user reviews of destinations and experiences, price alerts, and more flexible filters than those provided on OEM websites. Users of non-OEM sites select them for the purchase experience and peripheral features, not for the actual travel experience that is provided, thus non-OEMs must emphasize easy to use websites.

Travel		
<i>The Basics</i>	<i>OEM</i>	<i>Non-OEM</i>
1	Mobile Reservation Info	Mobile Reservation Info
2	Booking Centered UI	Booking Centered UI
3	Current Discounts and Packages	Destination/Experience User Reviews
4	Customer Service Resources	Price Alerts
5	Basic Search Filters	Advanced/Flexible Search Filters

Apparel

For apparel producers (OEMs), e-commerce is still in its infancy. Many of these firms still view their websites as communication tools rather than revenue engines. The table stakes for OEM apparel websites include an information filled site showing product details and availability, up-to-date styles, look books, current promotions and some method for directing visitors to stores. Many large retailers are beginning to introduce a more sales driven mantra to their websites. Abercrombie & Fitch has just launched a complete site update with a streamlined purchase path, PayPal integration, optimized navigation, and on-model photos to show product fit. According to an Abercrombie & Fitch representative, “a year ago, driving sales through our websites was not a priority. Now, we have

¹⁰ PhoCusWright’s U.S. Online Travel Overview, 10th Edition (2010)

changed that idea completely.” Other sites, like those for the Gap group and J.Crew, have progressed even further along the e-commerce path, showing live inventory, special deals, and expanded catalogs. Even in these cases, the websites mostly represent an extension of the retail stores, and do not act as standalone revenue engines.

In the non-OEM apparel space, development has been far more advanced. The lack of physical stores (ShopBop), or greater independence from those physical stores (REI), allows the sites to focus more closely on conversion rates¹¹ and customer purchase experience. The same basic features must be in place as with OEMs: product details, purchase paths, etc., however non-OEM sites must take additional steps to ensure customers are comfortable with the quality of the apparel they see on the site. Non-OEMs do not enjoy the same level of brand recognition and product confidence that OEMs do. For instance, visitors to the Patagonia site likely have a better conception of the physical details of the products they view than visitors comparing Patagonia and Mountain Hardwear articles that arose through a generic search on Backcountry.com. As a result, Backcountry.com must have better developed product reviews and descriptions of materials in order to inspire the same level of confidence as an OEM site. The lower level of brand recognition, on average, creates a barrier for apparel shoppers that must be overcome through better site design.

Apparel		
<i>The Basics</i>	<i>OEM</i>	<i>Non-OEM</i>
1	Basic Product Information	In-depth Product Details
2	Physical Store Locator	User Reviews
3	Style Look Book	Multiple Navigation Structures
4	Up-to-date Promotions	Current Inventory
5	Current Product Catalog	Streamlined Checkout

Upping the Ante

Upping the ante innovations are those features that clearly differentiate an e-commerce website from competitors, and drive increased revenue through higher conversion rates and increased customer retention. The most advanced innovations uncovered in our study were found with resellers and aggregators, largely driven by the reduced connection to product reputation and the increased e-commerce competition in non-OEM spaces. Popular trends in e-commerce lean heavily on “SoLoMo” features, as coined by John Doerr; that is, social, local, and mobile features. We observed many sites that built communities on their platforms, connected those communities through external social networks, and enabled access via mobile applications. Firms that could effectively “up the ante” by selecting innovations that aligned with the underlying internal, external and intrinsic aspects of their

¹¹ As an aside- conversion rate is difficult to measure when it involves a customer finding an item on a website, and then purchasing it in a retail store. In this case, we refer to conversion rate as the share of visitors making actual purchases on a website.

platforms drove greater value to their sites by engaging customers at a higher level than their competitors.

Travel

The opportunities to differentiate an OEM travel site from its competitors exist primarily around the pre-purchase and purchase experience. The top developments for travel OEMs to pursue include more flexible filters for searches, fully-functional mobile applications, improved user-interfaces developed with consumer input, active price alerts and personalized deals, and “explore” features that can spur new travel ideas for online visitors.

With the evolved e-commerce market for travel, many OEMs have already laid the groundwork for the innovations that will drive the greatest value for consumers. Filters and mobile websites already exist for the most part; extending that mobile functionality to encompass the full features of a standard website can differentiate OEMs, as few sites have done this so far. American Airlines is a company that has set itself apart by developing a fully-functional mobile suite. To improve the path-to-purchase, OEMs can build more flexible filters into their sites as well as create better engines for finding new vacation destination ideas. The general emphasis for OEMs should be to enable more personalized experiences and more straightforward purchases for visitors to their websites.

In the non-OEM space, identifying any faults in the purchase pipeline and increasing customer engagement is paramount to “upping the ante”. Hipmunk founder Adam Goldstein likened his innovation creation methods to “trying other websites and determining what is annoying about them”. The online travel aggregator and reseller arena is fast-moving and competitive; new ideas must be tested and evaluated on a constant basis. Companies must identify which features to keep and which to abandon as quickly as possible. On top of this effort to deliver the best possible website, non-OEMs must endeavor to build a brand that consumers value. Due to the lack of stickiness for many of these sites, non-OEMs can drive revenue through building a brand via strategic social media engagement and special deals, as well as full featured vacation planning and tracking tools that engage consumers at a level beyond just booking a trip. Strategic social media engagement is more than just creating Twitter, Facebook, Flickr, and YouTube accounts and replicating information across those areas. The most effective companies identify a specific value for each outlet. They give consumers reasons to engage with the brand across multiple media platforms. For instance, JetBlue has done an exemplary job in implementing a social media portfolio approach, allowing users to post photos to its Flickr group, providing up to the minute flight system information and customer service via Twitter, special deals through its Facebook page, and humorous commercials through its YouTube channel. Unique information is provided on each of its outlets. Non-OEMs can pursue similar approaches to build customer engagement.

Travel		
<i>Upping the Ante</i>	<i>OEM</i>	<i>Non-OEM</i>
1	Strategic Social Media Use	Strategic Social Media Use
2	Fully-Functional Mobile App	Fully-Functional Mobile App

3	Optimized UI	Price Tracking
4	Price Alerts and Personal Deals	Personalized Travel Suggestions
5	Flexible Filters	“Explore” Feature

Apparel

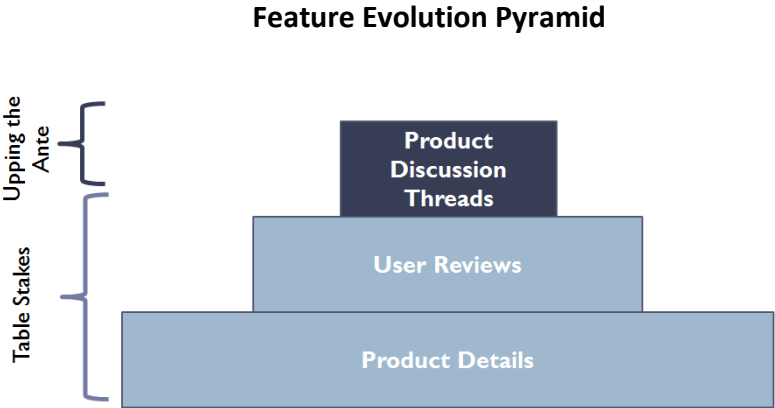
OEM apparel companies had the least developed e-commerce platforms in our study. As such, some of the “upping the ante” innovations are basic expectations in other industries. Next step innovations for OEM apparel retailers can be built around increasing customer comfort with making purchases: on-model shots to show product fit, user reviews and other user generated content to describe fit and quality, curated content and outfits to spur customer action, and a mobile platform to help customers discover products not available in stores. A company that executes all of these strategies with excellence is Bonobos. This young company has established a beautiful, easy to use e-commerce platform that goes the extra mile to encourage customer engagement and to provide as much information as possible on product fit and quality. Bonobos has strategically developed their CEO Twitter feed as a repository for focus group interactions, special deals, and general commentary on pop culture. Bonobos distributes unique information on other social media outlets, increasing the number of possible contact points for customers. Other OEM apparel companies would do well to increase the conversations between customers around the products offered on the website, and to increase communications between customers and the e-commerce platform (not just the brand).

Many apparel resellers and aggregators have already introduced the innovations that OEMs need to work toward, but they can still expand beyond their current sites by creating a more “store-like” feel. Sites like Backcountry.com work to re-create the shopping experience by incorporating social features. These include, active notification when another user adds a product to their cart, live inventory counts, discussion threads on product pages including reviews and Q&A sections, and strategic social media use including promotion of time-sensitive sales that feel more like a retail store’s operations. Though the mobile platform is less crucial for apparel retailers, the channel is growing rapidly in its influence. At least one retailer without a mobile-optimized website mentioned noticeable levels online purchases made on its standard site through mobile phone browsers. This customer action indicates a strong desire to make mobile purchases; anyone who has attempted to navigate a non-optimized website on their mobile phone can attest to the difficulty of doing so! Non-OEMs should focus on mobile access and social interaction to improve customer experience and conversion on their sites.

Apparel		
<i>Upping the Ante</i>	<i>OEM</i>	<i>Non-OEM</i>
1	On-Model Product Imagery	Extensive Product Imagery
2	User Reviews/Content	Social Shopping Experience
3	Curated Content/Style Selections	Social Product Design
4	Mobile Platform (exp. catalog)	Mobile Platform (ordering)
5	Strategic Social Media Use	Strategic Social Media Use

While the preceding observations are neither exhaustive nor predictive of what technologies to pursue, they provide an attempt to sketch the current level of development in the travel and apparel spaces. The features were included based on their frequency of appearance on the sites that we examined. From these lists e-commerce managers can form a clearer picture of where their websites fall in their current iteration.

Future development, however, must take into account customer dynamics and the tradeoffs between effort and effectiveness that will occur for any new features. In addition, the implementation of new features must be considered as a part of a portfolio of capabilities on a website, and not as a standalone change. For many of the innovations discussed above, foundational features must be in place to support the more advanced developments. For example, an apparel retailer considering the addition of product discussion threads must first evaluate the supporting feature set. The value of the threads will not be as great without intricate product details and a user community built through user reviews and other interactions. With these foundations, a company could expect much greater effectiveness from the addition of the threads.



Developing the Product Roadmap

As we have noted, the e-commerce industry is continually transformed by new ideas, technologies and business models. The question for industry players is how to remain relevant in this industry by adopting or adapting available ideas and technologies. Given the varied levels of e-commerce sophistication within both the apparel and travel verticals, and the overarching strategic role the website plays in generating revenue, it goes without saying that simply keeping pace with the cycle of development is not enough to ensure long-term success. Implementing a feature simply because it leverages the newest and most exciting technology is not necessarily the best use of scarce resources and time. Moreover, as we have seen, not all organizations are capable of developing or supporting a wide spectrum of features.

Thus we propose a simple roadmap for prioritizing development projects that begins and ends with a deep understanding of the customer. While most travel purchases are now made online, apparel penetration is much lower; only 25% of women over 18 with internet access in the US have purchased apparel online in the last year, and penetration among men is slightly lower at 17%.¹² Future growth for many retailers in the apparel space depends on attracting new customers and driving penetration beyond the core e-commerce consumers. Similarly travel players will depend on increasing purchase frequency and increasing stickiness in an industry that has low barriers to switching.

Innovation Roadmap



Customer issues can be divided into two major categories – reasons individuals do not currently shop on a specific site and reasons existing customers do not purchase on the site more often. A specific technology or feature may address issues in both categories, but it is critical for retailers to identify those issues. For example, when asked why they do not purchase apparel online, most respondents answer that they prefer to see how items fit before purchasing. For many would-be shoppers, the inconvenience of returning an item that does not fit outweighs the potential benefits of shopping online in the first place.¹³ Thus innovations that communicate better product details or enable shoppers to better predict how an item will fit them will have tremendous payoffs for apparel retailers by improving the experience for current shoppers and attracting new ones.

Identifying solutions is simply a matter of evaluating existing technologies and determining how they can be adopted (or adapted) to meet the identified customer issues. Organizations approach this process in different ways. In some organizations, it is a matter of identifying elements on other websites that are annoying, confusing or difficult to use and designing a way to fix those elements. For others it may be a more formal process. Regardless of the how solutions are identified, though, all organizations will be limited by their capabilities, resources and knowledge.

Thus the third step in our proposed roadmap is to evaluate the potential solutions against internal constraints. This is the step where companies should consider their current position on the technology s-curve, and where the new technology lies based on intrinsic, internal, and external factors. These factors also include the ability to design and implement the feature and extend to the ability to provide ongoing support for it. Organizations are also limited by the foundation provided by their available feature sets. It is critical to ensure that the foundational elements are in place before implementing new

¹² Intel, Online Shopping – US – June 2010

¹³ Ibid.

technologies. When retailers decide to make a substantial investment in their e-commerce platform, the tendency is often to try to focus on the latest technologies in an effort to leapfrog the competition. However, this strategy is often risky, and in some cases impossible to execute against. As discussed above, introducing a product discussion forum will not create value without the underlying product details and ratings that are necessary to spur a meaningful conversation.

In the final step of the roadmap, we return to the customer by implementing the feature and measuring performance to ensure that the original issue is actually addressed. Given the pace of change and opportunity for constant improvement, it is possible that there are multiple solutions to any specific issue and several iterations of development may be necessary before an issue is fully solved. Ultimately it is this iterative development process that will drive value in the e-commerce space. Given that Web 2.0 is focused entirely on the user and deepening the engagement between retailers and customers, it should be no surprise that the customers themselves should be driving which technologies retailers implement. The degree to which retailers are able to listen to that feedback and act on it will determine their long-term success.

Conclusion: Innovation Evaluation Criteria

As we have discussed, intrinsic, internal and external factors will determine which innovations are adopted and the rate at which those innovations are adopted. We thus propose the following checklist to evaluate specific innovations:

Intrinsic	Internal	External
<ul style="list-style-type: none"> ✓ Meets specific customer need • Lowers barriers to adoption • Improves customer experience 	<ul style="list-style-type: none"> ✓ Enhances value in priority interaction point (driven by position in value chain) 	<ul style="list-style-type: none"> ✓ Generates more value than other extension opportunities
<ul style="list-style-type: none"> ✓ Enhances interaction around product, brand and/or solution 	<ul style="list-style-type: none"> ✓ Possess internal capabilities to execute and support feature 	<ul style="list-style-type: none"> ✓ Puts at par with competition (and being at par is necessary)
	<ul style="list-style-type: none"> ✓ Supports growth strategy (organic vs. inorganic) 	
	<ul style="list-style-type: none"> ✓ Have foundational elements in place to make feature effective 	

Innovations that meet these criteria should be prioritized over others because the performance to effort and time ratio will be the greatest. These are the innovations that are going to drive value and deliver the highest return for invested resources.

Throughout our study, we encountered numerous Web 2.0 features that emphasized customer engagement, ease of purchasing, information communication and brand building. Companies may follow the above checklist to evaluate the feasibility of new features, and to estimate their positions along the technology s-curves in order to make decisions on execution. While the feature landscape in a year will look completely different to what we see today, the frameworks for evaluating those new feature sets will remain the same. Placing the customers' needs in the context of a firm's capabilities and the underlying technologies of its website will allow e-commerce developers to properly determine the innovation path to follow to drive the greatest value for their company as a whole.

Exhibit 1

Surveyed Companies

Apparel

OEMs

J.Crew
Bonobos
Abercrombie & Fitch
Gap
Marmot
Mammut
Patagonia
Ibex
Express

Resellers

Backcountry
Zazzle
Moxsie
Bluefly
Gilt
Nordstrom's
Zappos
Revolve
REI
EMS

Aggregators

Boutiques.com
Etsy
eBay

Travel

OEMs

American Airlines
SPG
Southwest
JetBlue
United
Marriott
Virgin Airways
Holiday Inn
Carnival Cruises

Resellers

Orbitz
American Express
Hotels.com
Expedia
Priceline
Travelocity
JetSetter

Aggregators

Air BnB
Homeaway
Couchsurfer
Kayak
Hipmunk

Exhibit 2a: Travel Aggregator (Kayak)

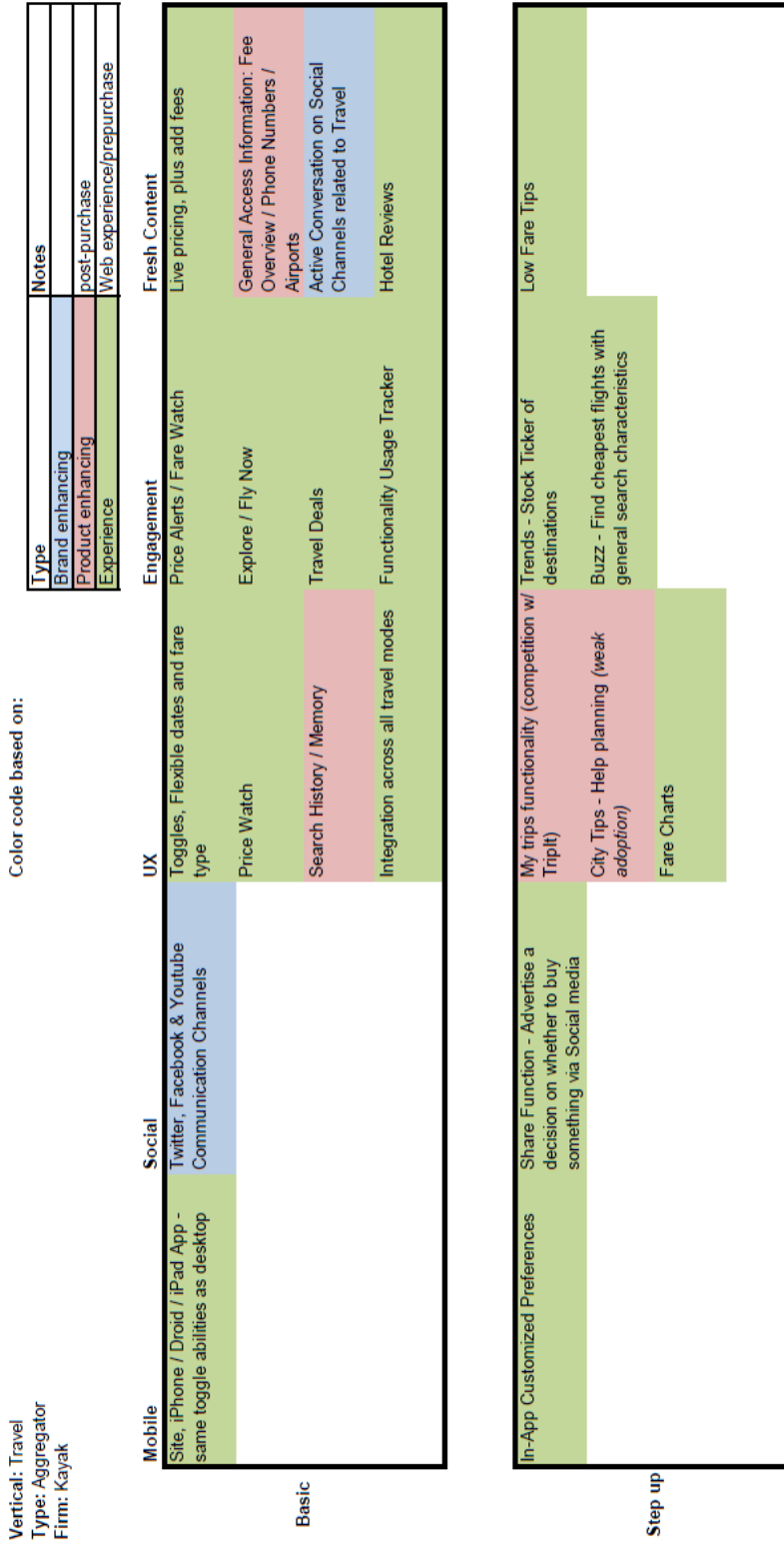


Exhibit 2b: Apparel Reseller (Zappos)

