# A 'Rainmaker' Process for
# Developing Internet-based Retail Businesses

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## Abstract

Various systems development life cycles and business development models have been popularized by information systems researchers and practitioners over a number of decades.  In the case of systems development life cycles, these have been targeted at software development projects within an organization, typically involving analysis, design, programming, testing, and deployment.  For business development models, phase-based approaches for developing generic businesses have been proposed.  With the recent surge in popularity of online businesses, and particularly web-based hosted services for online start-ups, a gap has emerged in the information systems literature for development processes specifically tailored to developing internet-based retail businesses.  In this paper, we present such a process, which we dub the 'Rainmaker' process for developing internet-based businesses.  We demonstrate, through a real case study, how the Rainmaker model can be successfully applied.

**Keywords:** information systems development processes, e-commerce, entrepreneurship, web start-ups

## 1. INTRODUCTION

"***Rainmaker*** (n): an executive … with exceptional ability to attract clients … increase profits, etc.:"                    *Dictionary.com*

E commerce courses have surged in popularity in recent years (Ngai et al, 2005; Moshkovich et al, 2006).  As e commerce educators increasingly indulge in active, experiential learning (Changchit et al, 2006; Braender et al, 2009; Kor and Abrahams, 2007; Williams and Chin, 2009; Preiser-Houy and Navarette, 2007; Terwiesch and Ulrich, 2009), an opportunity arises to reflect on the development of internet-based businesses in the classroom, and to propose reusable processes that generalize the peda-

gogical techniques employed.  In this paper, we introduce a pedagogic model for the development of internet-based businesses, which provides a useful and general framework to students and entrepreneurs for creating an online retail business.  The model is dubbed the 'Rainmaker' model for two reasons: it illustrates a process for generating internet-based businesses ('making rain'), and the repeated application of parallel technology identification and assessment in the model makes it schematically reminiscent of rainfall.

We begin with a discussion of related work, and describe why traditional systems development and business development life cycles should be tailored to the internet-based busi-

ness world. Next, we describe the Rainmaker model diagrammatically. Finally, we demonstrate the application of the model to the creation of an actual internet-based business.

## 2. RELATED WORK

Various systems development and business development models have been popularized by information systems researchers and practitioners over a number of decades.

In the case of systems development models, these include waterfall, iterative, prototype, exploratory, spiral, reuse, and other models – for a brief survey see Green and DiCaterino (1998). System development models have been targeted at software development projects within an organization, typically involving analysis, design, programming, testing, and deployment, and usually with a focus on information systems implementation rather than business development. Models are often tailored to particular software development paradigms – for example waterfall models were initially conceived for structured software development, iterative and reuse models were recommended as more appropriate for object-oriented or component-based software, the prototyping model became popular with the advent of drag-and-drop graphical development environments, and trial-and-error-intensive exploratory models are often used in artificial intelligence application development. The Rainmaker model introduced in this paper is targeted at a Software-as-a-Service (SaaS) paradigm, with a lesser focus on software development, and a greater focus on *business operations development* and *software selection*.

### Business Operations Development

Some authors have proposed information-intensive business operations development models for generic businesses – see for example Ives and Learmonth (1984) and Ives and Mason (1990), who's suggestions that information systems be developed to support a customer service life cycle were the precursors to the vibrant, modern Customer Relationship Management (CRM) software industry. The Rainmaker model specializes this, and other business development models, by providing staged guidance on the rapid assessment of and application of particular internet-based technology areas to the creation of a web-based businesses.

### Software Selection

With the recent surge in popularity of online businesses, and particularly web-based hosted services for online start-ups, a gap has emerged in the literature for pedagogic models specifically tailored to developing internet-based businesses. Internet-specific development cycles for use by educators have previously been proposed (see, for example, De-Villiers and Abrahams, 2000), but the recent surge in the availability and variety of hosted business-to-business platforms has introduced a lesser reliance on custom programming of in-house solutions, and a greater trend towards trial, evaluation, and selection of a varied array of external hosted services. Software selection – that is, identification and evaluation of available hosted services for different business functions – has therefore become an increasingly significant portion of the business operations development challenge.

Doing business on the internet now provides new operating modes that were previously unavailable. For example, information systems departments would traditionally proceed in a roughly sequential, single path manner with a time-consuming process of analysis, design, and programming for a selected project. With the increasing availability of hosted online services, businesses are now able to cheaply select and test multiple technologies and approaches – indeed many services are open source and/or free (e.g. phpBB for bulletin boards; WordPress for blogging; osTicket for issue tickets; and many others). Implementation typically involves account activation and configuration, rather than analysis, design, and programming. Occasionally, software installation (on an instructor or student's web hosting account) is required instead of account activation. Rather than simply conducting rigorous testing on software development projects, businesses are reliant on the quality assurance procedures of hosted service providers, and a business's assessment process now more often encompasses evaluation of multiple competing implementations, and re-investment in approaches that proved profitable during piloting.

The rainmaker model therefore adopts a characteristically parallel model tailored to a Web 2.0 world with bountiful cheap and easy-to-deploy options that can be inexpensively tested and accepted or discarded. The Rainmaker model is unusual amongst system and business development life cycles, in that it is tai-

lored to the development of internet-based businesses, in particular, internet-based retail businesses.

### 3.  THE MODEL

The complete Rainmaker Model is shown in the Appendix.  Figure 1 (see appendix) provides a schematic illustration of the overall Rainmaker model.  In the model, teams progress through business conception, comparison to competitors, production of a website and physical product(s), promotion of their business and products, day-to-day operation of the business, and monitoring and improvement of the organization.  During each of these phases, multiple implementation options are identified, then simultaneous researched or executed – hence the parallel arrows, reminiscent of falling rain.  Note that each option may be researched or implemented by a different team member, but all team members report on their findings or implementation afterwards, so that everyone can learn from the experience of others.  Post- or mid-implementation reporting allows all options to be regularly assessed.  Promising or successful options are reinvested in.

Parallel implementation is employed for a few reasons.  Firstly, it serves a useful pedagogic purpose, exposing students to multiple alternative manifestations of a technology area, and helping them build a better general understanding of the field.  Secondly, it allows best of breed solutions to emerge, via low cost determination of, and verification of, multiple alternatives.  The overall Rainmaker model relies intensively on a variation of Deming's Plan-Do-Study-Act cycle (Deming 1986, 1994), in an attempt to address the concern of some authors of the lack of a cyclic evaluation component in traditional SDLCs (Polito, Watson, Berry, 2001).

The schematic depicted in Figure 1 (see Appendix) shows a birds-eye view of the Rainmaker model.  Our particular concern, however, was creating a process targeted specifically at developing internet-based retail businesses, and so the Rainmaker process provides more detailed elucidations of each phase, to tailor the model for this purpose.  Figures 2 through 7 in the Appendix demonstrate these refinements.

In the *Conception* phase (Figure 2), various business ideas are generated, different revenue models are proposed, and corporate identity is established (for example, through definition of alternative missions and visions, and creation of various alternative logo concepts).  Students are assigned to functional teams, and team members are given tasks within each team.  Tasks are selected from the guideline tasks provided in the remaining phases of the Rainmaker model.  Task assignment may need to be revisited repeatedly during business development, as new tasks are identified, or as alternative team members are assigned to reattempt tasks not properly completed.

In the *Comparison* phase (Figure 3), the chosen business concept is compared to competing offerings currently available in various industries, using various assessment tools.  As we shall see in the case study later (§4), one such set of competitor evaluation tools should be web-hosted competitor assessment tools, which are particularly useful for understanding the sources and nature of internet traffic to a website.

In the *Production* phase (Figure 4), the focus on online business becomes especially apparent.  Website production is initiated through hosting provider identification, website design, content management solution identification, and bespoke system planning.  The physical retail product to be sold is prototyped if necessary, and refined.  Manufacturing options (e.g. in-house versus outsourced versus drop-shipped) are considered, and suppliers are assessed.

The *Promotion* phase (Figure 5) of the Rainmaker model involves use of both traditional and web technologies for business and product promotion.  Traditional media campaigns might include direct mail, print, radio, television, and other means (e.g. posters, business cards, networking at industry events and trade shows, etc.).  Web-based promotion includes identification of pay-per-click, pay-per-impression, and/or pay-per-action platforms, and then instantiation of various campaigns using these platforms (e.g. using different keywords or phrases to advertise).  Social media platforms are identified and campaigns are enacted.  Product data feed platforms are identified and tested, to allow product data to be fed to comparison shopping engines.  Email marketing platforms are assessed, and multiple email marketing campaigns are designed and launched.  Where necessary, sales management / customer-relationship-management

(CRM) tools are used to organize and monitor a local or remote physical sales team.

The *Operation* phase (Figure 6) addresses the listing, shipping, and returns-handling of the physical retail product(s). Online catalogues (e.g. hosted shopping carts) are assessed and implemented, and fulfillment and reverse-logistics solutions (e.g. in-house versus out-sourced) are evaluated and enacted.

The *Monitoring* phase (Figure 7) encompasses monitoring internal issues (e.g. through hosted issue tracking software), monitoring customers, and monitoring the company's website. Customers are monitored by finding and deploying customer feedback management systems, and by monitoring company and product reviews both on the company's own website and on 3rd party review sites, for instance using online reputation monitoring (ORM) systems. The business's website is monitored by employing web analytics packages to assess visitor volumes, frequency, and sources, as well as ROI of individual paid-search campaigns and other web visitor metrics (e.g. click-through-rate, bounce rate, conversion rate, cost-per-visitor, cost-per-lead, cost-per-sale, top traffic sources, top keywords, profit per thousand visitors). The availability of the website is also monitored through hosted up-time monitoring solutions.

## 4. CASE STUDY

To demonstrate the application of the Rainmaker model to a real scenario, this section provides a case study of an actual internet business, The Online Business Guidebook, that was created during an information systems senior capstone class using the Rainmaker model. This case study is intended to act as an exemplar and guide for information systems educators. We begin with some background on the Online Business Guidebook as a experiential learning project, and then describe the project's fit with the Rainmaker process.

The Rainmaker process is a pedagogic model, intended to guide students or entrepreneurs in the creation of live online businesses. Various authors have highlighted the pedagogic value of real application environments to students in information systems courses [Chase, Oakes, and Ramsey, 2007; Chen, 2006; Gabbert and Treu, 2001; Janicki, Fischetti, and Burns, 2007; Klappholz, 2008; Martincic, 2007; McGann and Cahill, 2005; Mitra and Bullinger,

2007; Scott, 2006; Song, 1996; Tadayon, 2004; Tan and Jones, 2008; Tan and Phillips, 2003]. While in many cases the real-world client is a for-profit institution, in other cases the client is a not-for-profit organizations (community partner) and students engage in 'service learning', where they undertake a real project that provides a valuable service to the community partner [Lenox, 2008; Saulnier, 2005; Tan and Phillips, 2005]. Typically, students are involved in implemented projects for real, extant clients. In our case, in an unusual twist on service learning, the students initiated and ran a brand new internet-based not-for-profit venture, christened "The Online Business Guidebook". In an earlier variation of this course – see [Kor and Abrahams, 2007] – students developed a real, live, for-profit internet-based business. For this instantiation, the instructor suggested a not-for-profit concept instead. Historic experience had indicated that for-profit student organizations were vulnerable to debilitating squabbles amongst students over ownership shares, and were occasionally seen in a negative light by recruiters, who sometimes viewed students as maverick self-starters with personal entrepreneurial agendas. The not-for-profit format was seen as more likely to engender positive sentiments amongst both students and recruiters. In the case of recruiters, we found that they viewed student participants in the not-for-profit as talented, community-minded, corporate contributors, who possessed valuable practical skills and experience that had been developed through active involvement in a real not-for-profit.

Let us now look at the application of the Rainmaker model to the Online Business Guidebook. In the following paragraphs, we describe the actual manifestation of each process in the Rainmaker model for this particular new venture. The specific tools described are illustrative of options assessed and employed by the new Online Business Guidebook venture, but this discussion is not intended to be prescriptive, and it is recommended that other options be identified, assessed, and implemented depending on the specific needs of the particular online venture being initiated. For guidance of other alternative software platforms to consider, consult the Online Business Guidebook itself, which is a good reference, by visiting www.Businessguidebook.org

In the *Conception* phase, the Online Business Guidebook idea was chosen amongst various competing alternatives. The idea was to pro-

duce and sell a step-by-step tutorial guide describing how to start and grow an online business. Different revenue models were proposed, including revenue from printed book sales, from sponsorship, from online advertising commissions (e.g. Google Adsense), and from affiliate marketing. Each was assessed via spreadsheet simulations, and continually monitored in reality as the business progressed (see Monitoring phase later), to direct promotional campaign investments (see Promotion phase later) to the most lucrative revenue stream. Corporate identity was established by agreeing a mission ("to provide public education on how to start and grow an online business") and a vision ("to reach 50,000 readers within 12 months"). Multiple alternative logo concepts were generated and a final design was chosen, which provided a tangible and credible brand for participants to relate to. Students were assigned to one of five functional teams: Finance, Sales, Marketing, Publishing & Distribution, and Web. Team leaders were appointed and each team member was assigned specific tasks from the available tasks suggested by later phases of the Rainmaker model.

In the *Comparison* phase, the Online Business Guidebook concept was compared to competing offerings, including magazines, books, websites, and tradeshows. This helped establish benchmarks on what was realistically achievable (e.g. in terms of readership, advertising rates, and other metrics), as well as clarify the organization's unique selling point. Students determined that their offering would be tutorial-based (rather than conventional entrepreneur-targeted magazines which are story-based), and "by students, for students" (being hipper and more vibey than a conventional textbook, through the use of color, icons, stock art, and actual vendor logos). Comparative websites such as compete.com, quantcast.com, and spyfu.com were used to gain insight into competitor's customer demographics, affinities of the competitor's online audience to other websites, keyword marketing tactics being employed by competitors, and other competitor activity.

In the *Production* phase students assessed and chose a hosting provider and prototyped multiple website designs before settling on their favorite. Joomla was identified from available options as their preferred content management solution, and the students set about writing and releasing multiple pieces of content in a standard format using Joomla's Article Manager. Various community-oriented features were created: a discussion forum was incorporated in the site (using PHPBB), a blog was added (using WordPress), and following suggestions by Kane and Fichman (2009), a wiki for consumer-contributed content was set up (using MediaWiki). Custom information system development was avoided wherever possible, in favor of hosted solutions which were robust and quick to deploy. For the physical product multiple prototypes (different cover designs and internal layouts) were produced, from which the most attractive was chosen. Quotes were requested from multiple different printing vendors before choosing a preferred supplier.

During the *Promotion* phase the students contemplated and ran multiple traditional and online campaigns. For direct mail campaigns, multiple postcard designs were generated, and the favorite was sent to a small pilot target audience using a web-based direct mail service, Click2Mail. Following quality concerns with the first pilot, a second pilot was conducted. Satisfactory results with the second pilot prompted reinvestment in the second campaign, to roll it out to a full scale audience. For print media, press coverage was obtained in local newspapers and the alumni magazine. Multiple business card concepts were designed, and the nicest were printed, and distributed at entrepreneurship events and industry tradeshows which the students attended. Large, full-color, portable roll-up vinyl displays were purchased to attract attention at these events or during physical on-campus or off-campus campaigns. The Monitoring phase of the Rainmaker model (see later) was run concurrently to monitor the success of each campaign: in particular, web analytics tools and customer feedback forms helped quantify responses to each campaign. For web-based promotion, the students deployed and assessed campaigns on multiple pay-per-click, pay-per-impression, and pay-per-action platforms, including Google, Facebook Advertising, and AT&T's Ingenio. Different keyword campaigns (e.g. "entrepreneur", "internet business", "start my own business") were created, each with a small initial daily budget, and reinvestment was made in successful campaigns and keywords. Email marketing platforms were assessed, and alpha and beta campaign designs were created and tested on the chosen email marketing platforms, Ace of Sales, and Mailchimp.com. Multiple hosted sales man-

agement tools were reviewed, but cost and complexity considerations led to the choice of Excel for sales management.  Over 400 sales calls were conducted, by a team of 9 students using a common script and 'brag sheet'.  The sales team shared successes and failures in weekly meetings, and documented all leads and results in a spreadsheet.

For the *Operation* phase, both in-house and outsourced fulfillment models were tested.  For in-house fulfillment, Google Checkout was used for product listing, payment processing, and order management, and a student was responsible for shipping and returns processing using the Google Checkout administrative interface.  A portion of inventory was also sent to Amazon, for storage and fulfillment from a remote warehouse.  Revenues, costs, and effort of each fulfillment approach were compared.

The *Monitoring* phase involved monitoring internal and external items.  For internal issues, multiple ticketing systems were evaluated.  An open-source issue ticketing system (osTicket) was deployed, and used to assign tasks to team members, and monitor completion.  For customer monitoring, a visual drag-and-drop tool, SmartFormer, was used to configure custom web-forms to receive feedback from readers, advertisers, and distributors.  Public product reviews (e.g. on Amazon) for both the organizations own product and its competitors were also monitored, with the intention of funneling good customer suggestions into future product designs.  Google Alerts was used as a basic customer intelligence gathering ("buzz monitoring" / "online reputation management") system.  Google Analytics and awStats were used to monitor website traffic, assess campaign performance, and make campaign termination or reinvestment decisions.

## 5. LIMITATIONS

While the Rainmaker model and Online Business Guidebook example case provide a useful framework for internet-based business development, a number of limitations exist.

Firstly, though multiple hosted software categories were featured, the Online Business Guidebook organization did not necessarily pursue all available business operation development options.  It is recommended that educators allow their students to exercise some level of creativity in the pursuit of existing and newly emerging alternatives.

Also, while the Rainmaker model is appropriate for retail organizations, it requires refinement or alteration for other types of internet businesses where no physical product is sold.

Furthermore, emerging hosted technology areas will need to be included in updated versions of the Rainmaker model as these new technologies arise and mature.

Regarding guidelines and timelines for execution, as well as evaluative instruments, readers are encouraged to contact the author for suggestions.

Finally, this paper does not provide a listing of vendors who provide the various platforms described in the model, nor does it provide a tutorial on how to employ each technology platform described in the model.  We refer the reader instead to the Online Business Guidebook ( available at no cost at `www.businessguidebook.org` ) for this information, which may be helpful to educators who are applying the Rainmaker model in practice in a classroom setting.

## 6. CONCLUSION

The Rainmaker process is a comprehensive, though not exhaustive, pedagogic tool for developing an internet-based retail business.  The process customizes previous system and business development methods with particular assignments drawn from available modern hosted internet services.  Parallelism is employed to enhance education by identifying, implementing, and comparing multiple options, thereby promoting overall industry knowledge rather than merely specific vendor familiarity.  This paper used a real-world case study, The Online Business Guidebook case, to illustrate that the Rainmaker model is sufficient to adequately describe and replicate the business development process for a new online retail business.  It is hoped that the Rainmaker model will provide a useful pedagogic tool for educators teaching e-commerce and entrepreneurship classes.

## 7. ACKNOWLEDGMENTS

the class in this endeavor – we refer the reader to the Acknowledgements page of The Online Business Guidebook for a detailed listing of the dozens of contributors to whom we are grateful.

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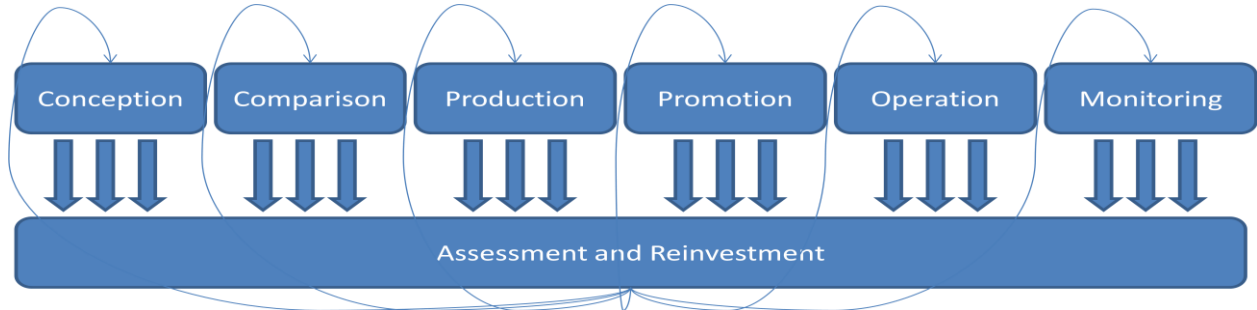
# Appendix 1: Process Diagrams



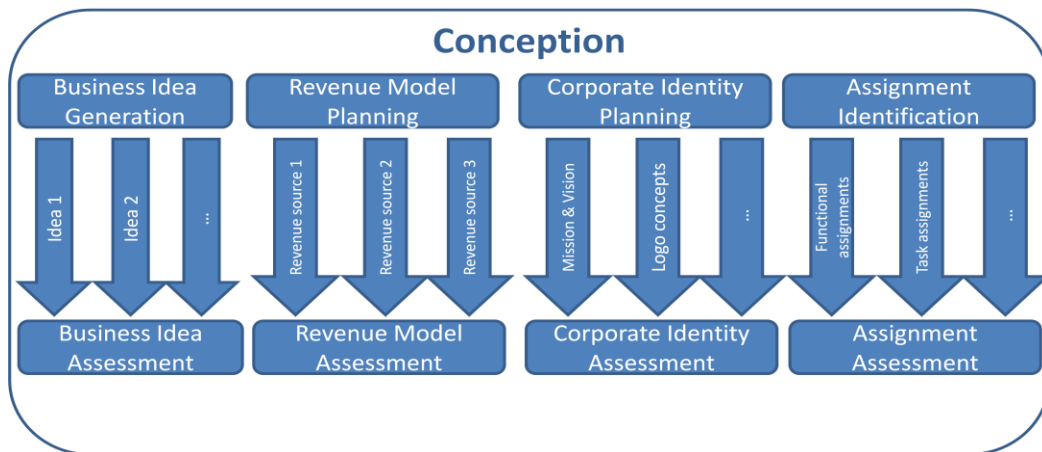**Figure 1: The Rainmaker Online Business Development Model (high level view)**



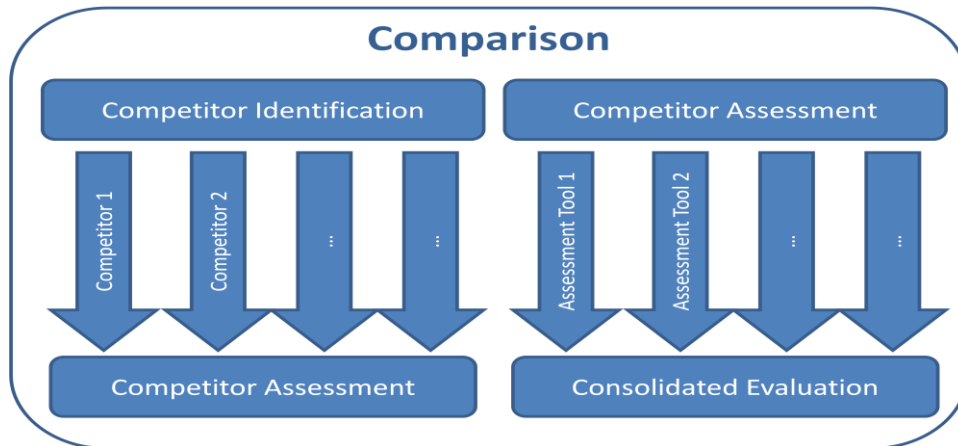**Figure 2: Conception Phase of the Rainmaker Model**

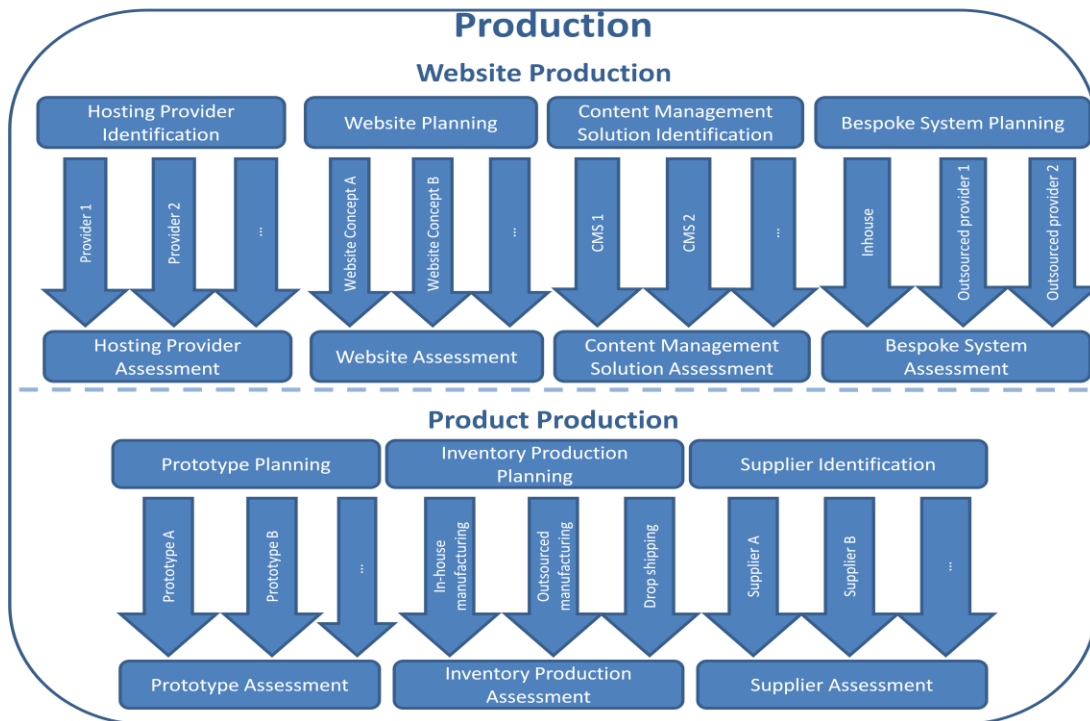**Figure 3: Comparison Phase of the Rainmaker Model**



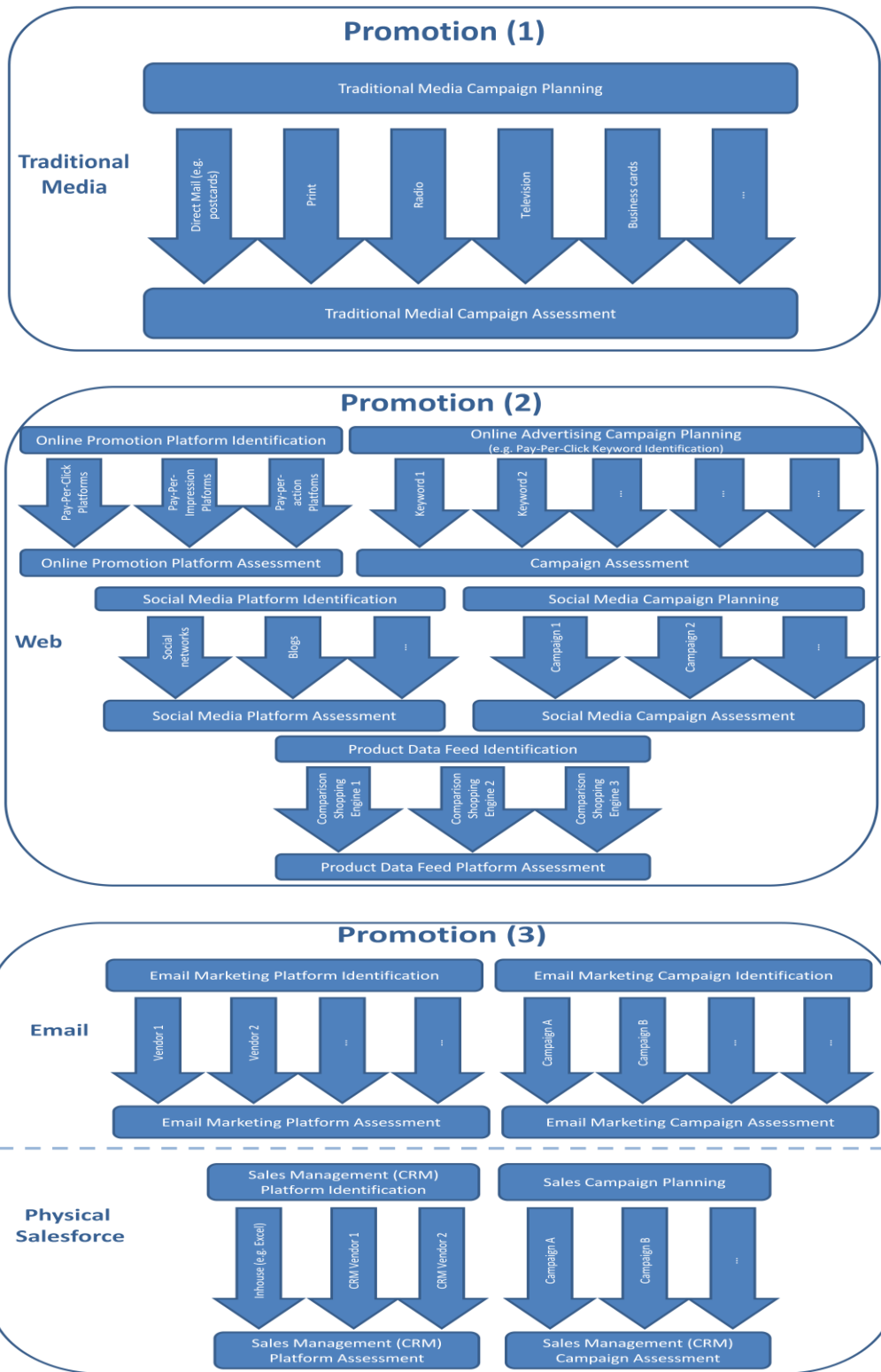**Figure 4: Production Phase of the Rainmaker Model**

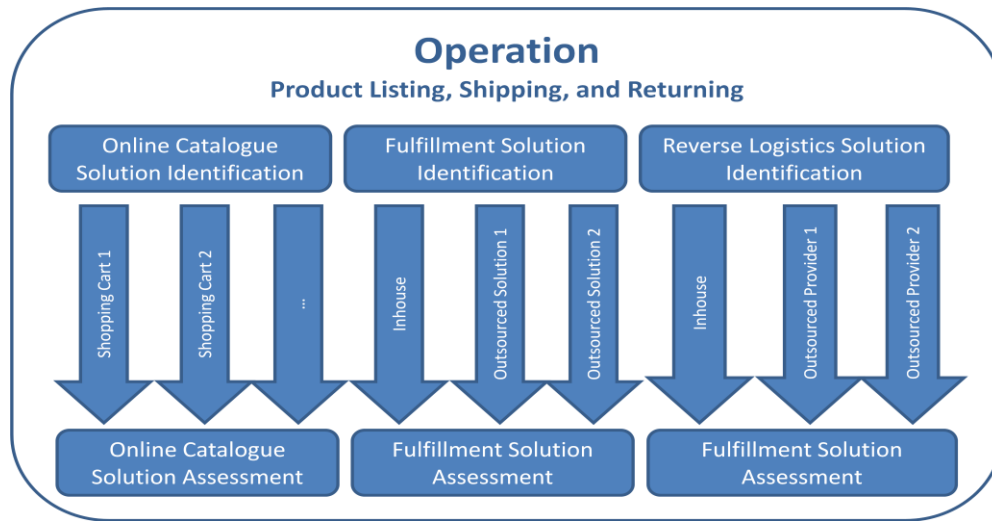**Figure 5: Promotion Phase of the Rainmaker Model**
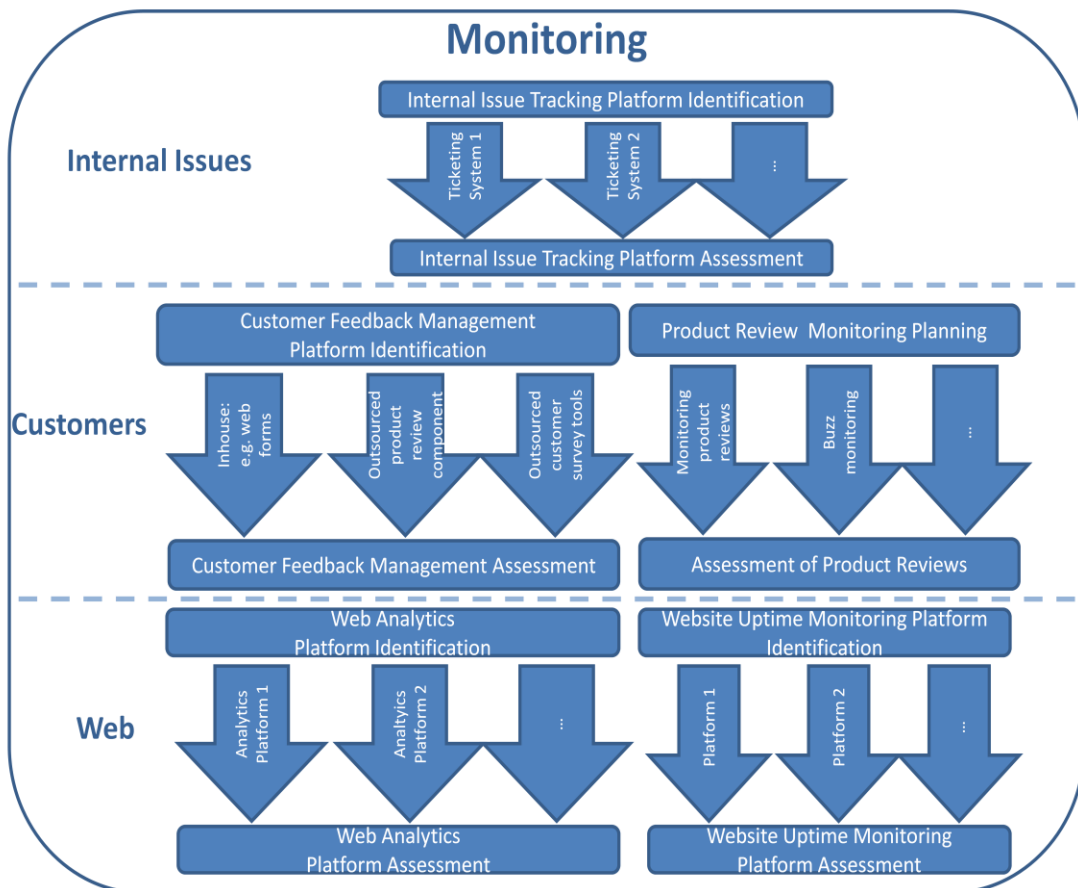
**Figure 6: Operation Phase of the Rainmaker Model**

**Figure 7: Monitoring Phase of the Rainmaker Model**