
HKS Development Process

A Guidebook for Partners and Clients

Version 2.1

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Introduction

This document serves as the standard development process as followed by Haven Knowledge Systems Inc. (HKS). After reading this document you will understand what HKS does during a project, and how this integrates with your internal processes.

This document is written in plain language. If any part of it seems unclear or ambiguous please contact the author, Brad Einarsen (brad@hks.ca).

Who Should Read This

There are two primary audiences for this document. Each primary audience has a number of secondary audiences defined with varying levels of involvement.

Client Stakeholders

Primary Contact

The primary contact is expected to communicate with HKS at all stages in the project and is expected to act for the client company to ensure that the project is successful by internal measurements.

Change of the Primary Contact can cause significant disruption to a project so ensure that the Primary Contact is someone who will be around for the duration.

Defining specific resources (usually time) and objectives for the Primary Contact really help generate the attention that makes for a successful project.

Secondary Contacts

Secondary contacts often have specific areas of responsibility and are deeply interested in selected sections of the project. Secondary Contacts are expected to copy the Primary Contact on anything that might have wide project implications. Generally, the more items that are copied to the Primary Contact the better.

Executive Sponsor

Usually there is an Executive Sponsor inside the client organization who is ultimately responsible for the project. This person needs to see that the business objectives are being met and must be kept informed to ensure that there are no surprises at the end of the project.

Project Contributors

Web projects can improve the way that many people in the client organization work. This change is good if it meets the business objectives and provides benefit for the client organization but can require some employees to change their work processes. The folks who will be using the new system should either be involved directly or at least have spokes people to represent them at

meetings. The folks “on the ground” have the most relevant experience for the usability of the new system and need to have a voice in the project.

Partners

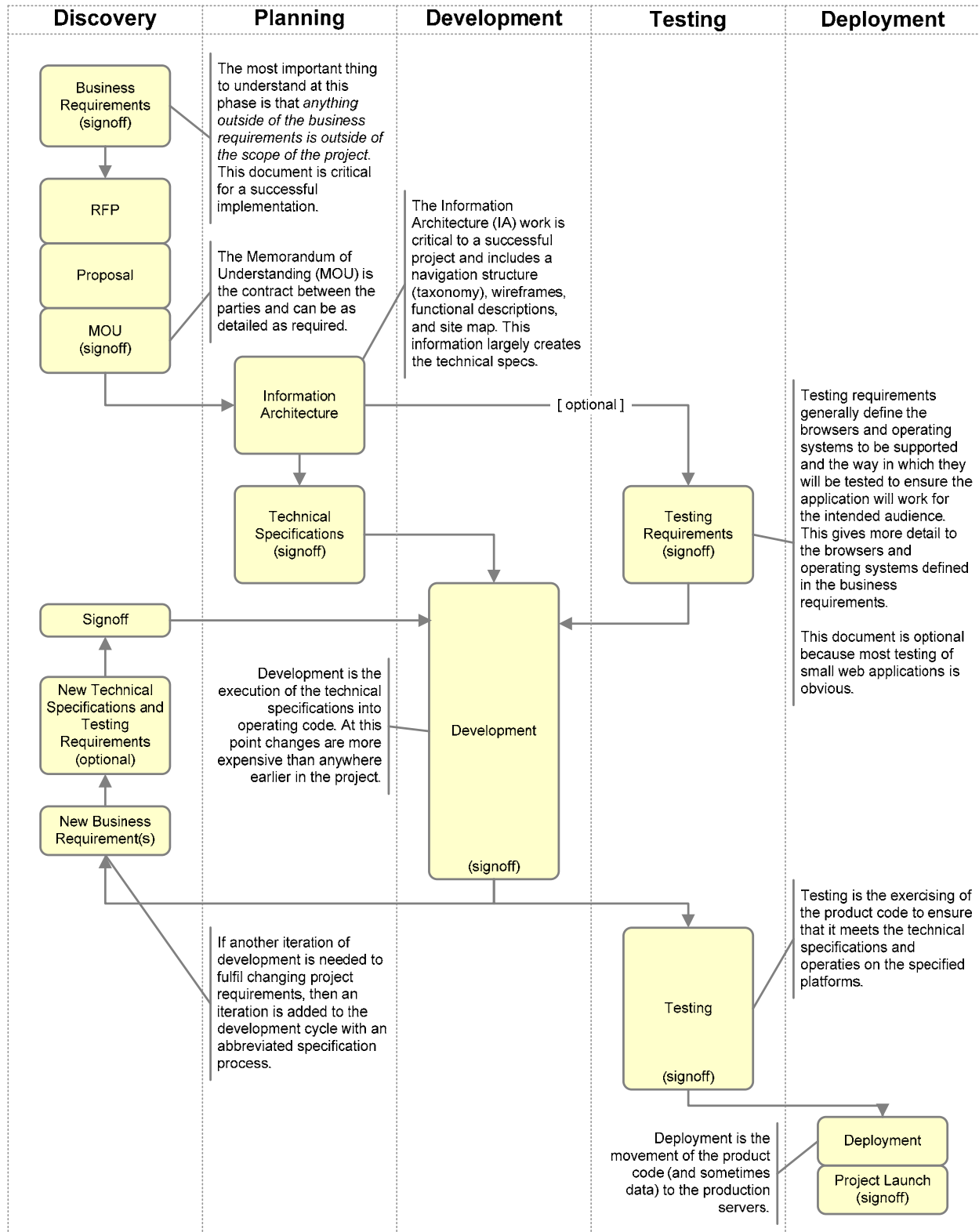
Often there are multiple vendors involved in a project and these vendors need to have close ties to one another to ensure no technical details fall between the cracks.

The lead vendor must know who will handle the different parts of the project. Often HKS is the lead vendor, but we are comfortable being a partner as long as the lead vendor is clearly identified.

HKS Employees

If you are an employee of Haven Knowledge Systems Inc. you better know this document inside and out.

The Development Process in a Nutshell



The development process in a nutshell

Discovery

The Discovery phase refers to HKS finding out the overall scope and purpose of the project so that we can accurately bid.

Business Requirements

To ensure that the business goals of the project are fulfilled it is recommended that a business requirements document be produced up front. This document, with the technical specifications detailed below, define the project, it's scope, and how it integrates with the business as a whole.

If metrics will be used to measure the success of the project, this is where they need to be detailed.

Often, this document is contained inside the RFP. For smaller projects (under \$200K) that is acceptable.

Request For Price / Proposal (RFP)

Sometimes the client organization will have an RFP written that describes the project in detail and sometimes not. The realities and pressures of daily business mean that this document often does not exist or it is only lightly defined.

HKS understands the pressures of doing business and is prepared to help at this phase to ensure the project is a success. Often HKS will provide consultation and RFP writing services for a fee to the client organization. Depending on the project and the client this may even preclude HKS from bidding on the work, and that is acceptable as long as all parties understand this at the outset.

Proposal

HKS' response to the RFP is a proposal document. This document shows, at a high level, how HKS would solve the business requirements and provides a price at which this could be done. All prices quoted by HKS under the standard process are "fixed". HKS assumes the risk of getting the work done. However, this means that if changes are made later in the project then these are handled as change requests and are charged separately.

Memorandum of Understanding (MOU)

Usually, the MOU is the only document needed to proceed with the project. For larger, more complex projects a full contract may be required. HKS and the client negotiate the level of documentation required. Since we are the vendor, we are very flexible with the amount of detail that the client wants in the MOU / contract and always approach these negotiations openly and with full disclosure. We prefer a two-page MOU written in plain language.

Planning

The planning phase is where the ideas and goals of the project get translated into project terms of specifications, resources, hours, and schedules.

Information Architecture

This document maps out the site as a whole and contains the scope of the work in technical form. While it is reasonably technical in nature it is still written at a level that the client stakeholders can readily understand.

Note:

If there is anything in the Information Architecture document that is unclear or not fully understood then questions need to be raised at this stage in the project. This document is the primary map that HKS uses to build the web application and a mistake here can be costly for both HKS and the client. See also Testing on page 18.

User Stories

Elapsed Time:	1-2 weeks
Result	Word Document Section

User stories are short descriptions of sample users that are composites of typical known user types. These stories give the whole team the ability to use shorthand when describing complex usability issues. For example, when looking at a screen mock-up you might ask, "Would Nancy know where to find the task details?" This simply makes the users and their tasks more concrete and less theoretical.

User Task Activity Diagram¹

Elapsed Time:	Variable based on scale, 1-4 weeks
Result	Visio diagrams

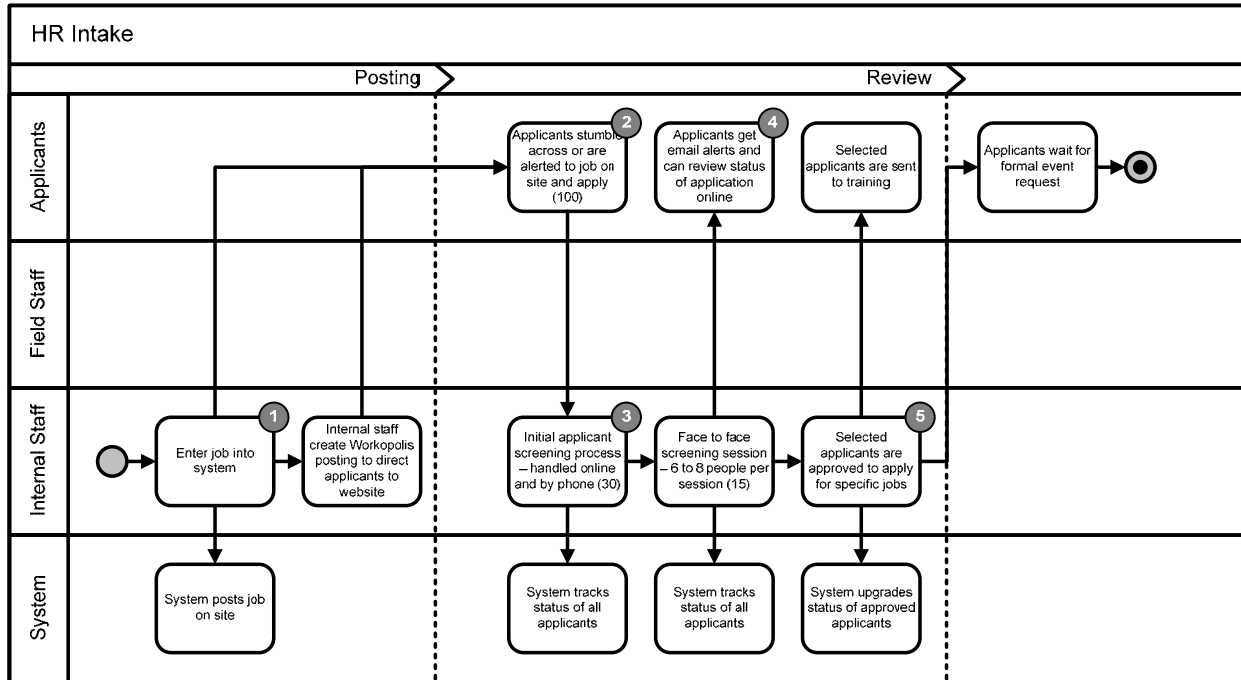
This is an example of the types of diagrams used to map out the user experience. These diagrams are developed during the requirements gathering and documenting phase of the project and are used as input to the creation of the site wireframes.

Note

This document is used only on larger applications. If your project has these diagrams they need to be reviewed carefully with the wireframes so that the work progresses in the right direction.

HKS will build whatever is described in these diagrams as they become the foundation of the technical specification. Errors or omissions here will result in charged change requests later in the project.

¹ An activity diagram is a UML diagram style for mapping out user tasks.
<http://www.agilemodeling.com/artifacts/activityDiagram.htm>



Content Mapping

Used only for website revisions.

Elapsed Time:	1-2 weeks
Result	Word Document or Excel Spreadsheet

Content mapping is the task of reviewing the existing site content to expose the underlying structures. Often these structures are reflected in the existing site navigation, but sometimes there are hidden structures that should be exposed when the site is redesigned.

This map also gives the team a view on which topics can be combined, deleted, reworked, and added.

A typical content map is a spreadsheet containing the following details:

- Address (absolute or relative URL)
- Description (page title and a few words about the content)
- Relevance (notes on how this page fits the new site direction)
- Action (merge, rewrite, delete, keep, etc.)

Taxonomy (Site Navigational Structure)

Elapsed Time:	1-2 weeks
Result	Word Document Section

The information architecture task takes the existing content, adds the desired messages and functionality, and filters for the different user types to produce a conceptual structure for the website. This conceptual structure gives the team an

information hierarchy or taxonomy on which to hang all of the content of the site.

The information architecture for this site doubles as the technical specification document. At the time that this document is complete all of the technical functionality of the site has been defined.

Site Wireframe

Elapsed Time:	1-2 weeks
Result	Visio Drawings

The site wireframe takes the structure and information architecture and renders it for the first time in a way that resembles a web page.

This wireframe design can be rendered in HTML reasonably quickly. This rendering will give the team something concrete to review and it will also enable quick usability reviews of the site with students who are available for 10 minutes.

Wireframes are generally linked to activity diagrams to illustrate when they are used. In the following example, the wireframe matches item #5 in the activity diagram.

5
Extranet – Nelson Muntz

logo

Local Nav

Applicant Review – Martin Prince

Name:

Applied on:

Address:

Home Phone:

Mobile Phone:

Status:

Cover Letter:

Resume:

Notes:

Linked File: [Resume of Martin Prince.doc](#)

Applicant Photo

Site Blueprint (Sitemap)

Elapsed Time:	1 week
Result	Excel Spreadsheet

The site blueprint takes the information architecture's conceptual structure and renders it in a physical structure. This physical structure includes non-content related items such as directory names, file names, and database elements. These combine to form the technology backbone of the site on which all interactive functionality is created.

This document adds on to the information architecture with its file system information and implementation details for things such as database usage and site forms.

Technical Specifications

Elapsed Time:	1-2 weeks
Result	Word Document containing many elements from above

This document details how the technology will work. There is a close relationship between the information architecture and the technical specifications. These specifications package the IA documents with some extra detail when necessary.

For many projects the IA documents are all that is required. Optional technical specification items are:

Entity Relationship Diagram

Details the design of the database

Data Dictionary

Lists the data used by the application.

Functionality Map

Details the object model used to centralize common code.

Graphic Design

Elapsed Time:	3-4 weeks
Result	Graphic designs in flat files (JPEG)

Most HKS projects follow the "3-1-1" design cycle to ensure that the product quality is as high as possible. Generally some money can be saved if we contract for only two initial designs (a 2-1-1 process) but then the scope of designs is limited.

The “3-1-1” cycle refers to the number of designs produced at each step:

1. Initial Designs (3)
2. Adapted Design (1)
3. Final Design (1 – iterated until complete)

This “3-1-1” development cycle has been shown to get the best results with a reasonable investment and has enough review time to ensure that the involved stakeholders have the opportunity for meaningful input.

Initial Development

This phase starts with a design meeting where the stakeholders are asked for details. For this meeting the best items to have are:

- A description of what emotive messages the site should convey
- Examples of other marketing materials
- Examples of logos
- A set of 3 to 5 websites that are considered representative

This phase ends with three example designs. These designs are sent electronically so that there is time to review them before the review meeting.

Generally this phase takes at least three weeks.

Note

It is important to give this part of the process room to “breathe”. The graphic artists can produce work faster when required but then they don’t have the creative “percolation” time required to produce the best work. Since the site look and feel will last a long time and can be expensive to change later this time is protected by the HKS project manager.

Adapted Design

This phase starts with the review meeting of the example designs. The designs are critiqued for their ability to carry the company’s message.

Normally, one design emerges as the preferred design and elements from the other two are melded into the preferred one. If none of the designs are adequate then initial development needs to start again, but that increases the cost of the project.

The design is then reworked to incorporate the comments from the meeting.

This phase ends with a redesigned example site. This design is sent electronically so that there is time to review it before the review meeting.

Final Design

This phase starts with a review meeting of the chosen design. This design is critiqued for how the different elements were incorporated and final comments are accepted.

The design is then reworked to make any final changes. If further changes are required then they are done iteratively until the client is happy with the results.

This phase ends with a final design that is ready for sign off.

The deliverable for this work is the final PSD (Photoshop) files.

Iterative (Phase) Process

The project may return to the Planning phase when more iterations are required. Each iteration is handled separately and is charged and billed separately.

Iterations are generally required when the client sees an opportunity for increased functionality during the development phase. If the requirement for this functionality is strong enough, another iteration may be required.

Iterations can also spawn side projects on their own that run in parallel so as not to delay the initial date of the initial project.

Development

Once the specs are produced the programmers, artists, writers, and testers can build the tools and content required to fulfil the business needs.

During development some “alpha” testing is done to ensure that everything hangs together and works.

Philosophy

Haven Knowledge Systems’ development philosophy is that the inside of your web application should be as clean and understandable as the outside. What this means is that everything from the use cases to the specifications to the database design to the code itself should be clear and readable (by someone with the appropriate skills).

There are three main benefits to this philosophy:

- Ease of Maintenance
- Most Compatible Going Forward
- Search Engine Optimization

Ease of Maintenance

Since the code design is clear the site can be maintained more easily. This results in lower total cost of ownership as future changes can be incorporated more easily and programmers new to the code base can get up to speed more quickly.

Content maintenance is also eased by the use of good structure. HKS uses true XHTML editing software on its web content solutions to ensure that 1. users have a simple way of updating material, and, 2. that updated material always conforms to good coding practice.

Compatibility

Browsers are continuously evolving towards stricter W3C standards compliance. This trend ensures that a strict adherence to standards on the website will pay off in terms of better browser compatibility in the long term.

Search Engine Optimization

Since the XHTML produced for the website is tested for conformance, we know that the site is both “future-proof” and maximally readable by the different search engines.

Use of Structure Tags

The site uses CSS and XHTML to create structurally-sound and visually perfect web pages on modern browsers. This separation of structure (HTML code) and

presentation (CSS code) ensures that the site is maintainable and that the information parsed by search engines is indexed in the best possible way.

HTML / CSS Templates

The designed website can then be put into an HTML shell to make it easy for staff to create new pages and migrate content.

The deliverable for this work will be:

- Set of local navigation menus for the different user levels
- A cascading style sheet (CSS) file that defines the site typography
- Cut up graphics that fit together to correctly display the site
- All materials entered into HKS WebContent for immediate use

Programming

This part of the process is pretty much a “black box” for the client stakeholders. You will hear mutterings from us about progress and bugs and deadlines but for all intents and purposes this is the “heads down” portion of the project.

If we have done our work up front and the IA and specifications are correct then this work will result in a web application that satisfies the business requirements.

Staging and Development Servers

During development there are two primary servers to be concerned with: Development and Staging. Most clients will only ever see the Staging server as this is where materials are placed for client review and system testing.

Bugs

Bugs are the inevitable result of writing code. There may be so many side effects with a piece of logic that it is impossible to guarantee bug-free code, or, the programmers may not understand the specifications as there may be language problems or tacit requirements that are non-obvious.

We perform testing during development and at the end of the cycle to try and ensure error-free operation. See the next section on Testing for what the client stakeholders can do to ensure the best quality final product.

Content

Content is often the forgotten child of a web development project. It is very easy to dismiss it as either already done on the existing website or something that can be put together at the end of the project cycle. Both of these plans can cause severe delays in launch dates.

HKS Content Migration

HKS is not a content company. We do not write material or take photos for clients. The programmers will migrate materials from one HTML base to another, but under no circumstances should that process be considered a “clean up” of the materials. No spelling, grammar, or messaging problems will be fixed during a content migration handled by HKS.

Content Source

In-House SMEs

If the source of content is internal subject matter experts (SMEs) then it is important for the client primary contact to have a good handle on the content schedule and have enough internal profile to ensure that the work gets done.

Writing material for the web is not easy, and public web pages are the face of your company to the outside world so the quality of the writing is critical. If you have the writing skill, the time, and the discipline in-house then this is your best option for content.

Contract Writers

Sometimes your best bet is to hire a contract writer to produce your website text for you. HKS knows of several writers who can perform this work. We do not have financial arrangements with any writers, these are people we have worked with in the past and can vouch for their work quality. You can also find writers on the IABC website (<http://www.iabc.com/> for global or <http://toronto.iabc.com/> for the GTA).

Testing

The testing phase is where the bugs are flushed from the system. All code has bugs; the trick is to remove any bugs that are noticeable. This implies that testing effort should closely follow the business requirements document so that the most important business tasks are tested the most.

There are two main focuses of technical testing:

1. Testing for Browser Compatibility
2. Testing for Accuracy

There is one additional testing type that clients perform:

1. Testing for Message

Testing Requirements

The testing requirements document, if used, is written at the same time as the technical specifications document and is given signoff at the same time.

Often the project does not require a formal testing requirements document in which case the project information architecture or technical specifications are used.

Note

It is important to note that neither the RFP nor the HKS Proposal are valid reference points at this stage in the project. Often there is migration of requirements during the planning phase and line items are changed, added, or removed to fit the project scope and budget. These changes will be captured only in the information architecture or technical specifications and they are the sole arbiter about what is included in the project.

Browser Compatibility

All HKS solutions are tested using NetMechanic's "Browser Photo" solution. This tool tests the following browsers and operating systems in both 800x600 and 1024x768 screen resolutions and both normal and larger font sizes:

	Opera	Firefox	Netscape 6.2	Netscape 7.2	Netscape 8.0	IE 5.5	IE 6.0	IE 7.0	IE Mac	Mozilla	Safari
Windows 2000			X			X					
Windows XP	X	X		X	X		X	X			
RedHat Linux	X	X								X	
Mac OS X		X							X		X

Code Accuracy

These bugs stem from non-specified conditions that only become apparent when the programming is happening and HKS makes assumptions or mistakes in the code that fail to account for complex conditions.

Both HKS and the client are responsible for finding these bugs.

By the time acceptance test rolls around it should be a formality.

Site Messaging

This is the largest volume of bugs by far. Normally, these have nothing to do with the technology or even the site migration services but are a reflection of a fresh edit of the site text and graphics.

Most of the time any changes made to content after the initial load will be charged as time and materials updates by HKS. This highlights the importance of internal content reviews before passing material over to HKS for migration.

Deployment

Deployment is the final phase of the project. The built code and content is moved to the production servers and tested one final time before we “flip the switch” and make the application live.

Deployment

The deployment effort is short but critical. This is where we move the application to the production host and test. Once a thorough HKS test has been made the site / application is ready for acceptance test and signoff.

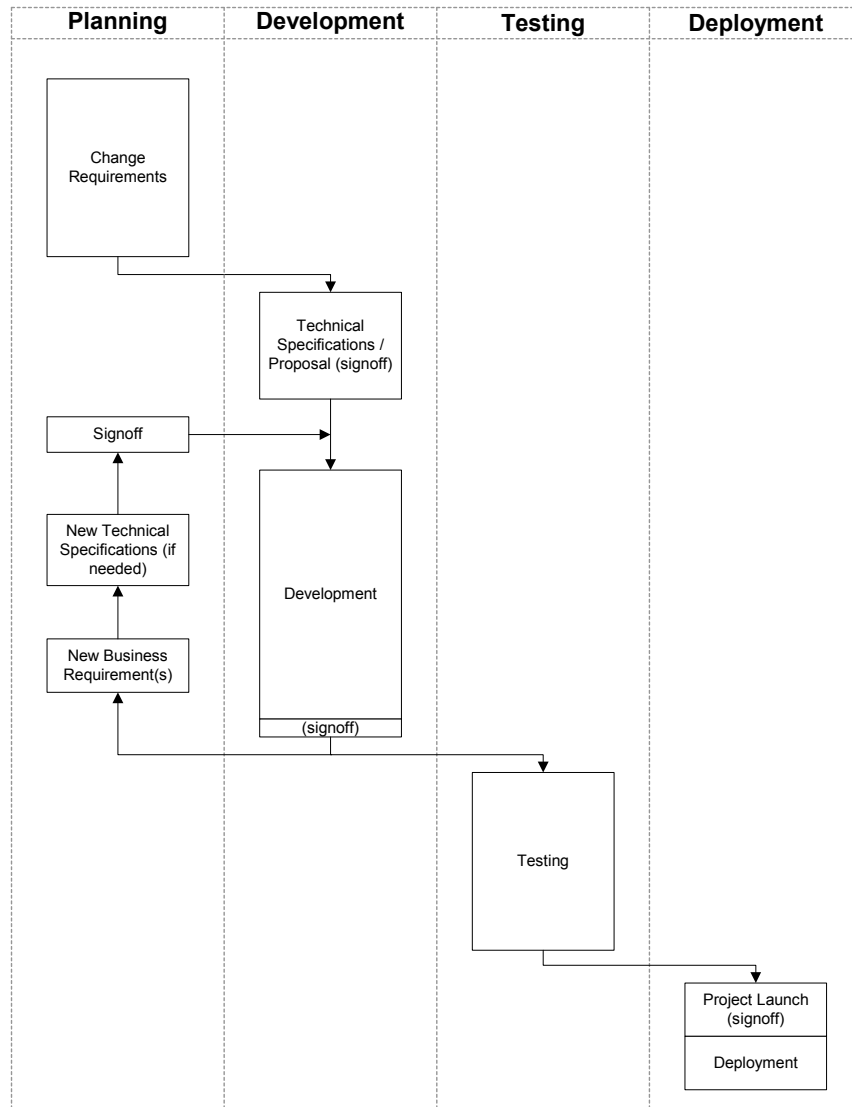
If the hosting technology is located at the client or at a 3rd party the deployment work can be much more extensive. This type of work is highly variable and depends on the 3rd party's technology, processes, procedures, and available time.

HKS charges time and materials for all 3rd party deployments.

Project Launch

Once signoff is given the URLs are pointed, or the site server address is switched, and the site / application goes live. The new business processes, if any, are now used and the maintenance phase of the project begins.

The Maintenance Process



The maintenance process in a nutshell

The maintenance process is similar to the development process but on a smaller scale with more discrete work items.

Planning

For most change requests the planning phase is the exploration of the problem / opportunity to determine the best way to meet the identified business need.

The documentation of these changes does not generally need to be as formal as a full project. Often an email will suffice as the initial project definition.

Business Driven Requirement

Generally, the business-driven requirements come from the client organization and are the result of internal work to identify a new opportunity using the web site / application.

Technology Driven Requirement

Technology-driven requirements are often suggested by the HKS client contact and could be performance improvements, data handling improvements, security improvements, or many other items.

Development

The development phase is the production phase of the project. This is where HKS builds the tools and technologies required to satisfy the business needs.

Technical Specifications

For maintenance items this document does two things: it describes how the change will work in relation to the existing web site / application, and it provides the costs associated with the project. The combination of the specification and pricing into one document makes the maintenance work more efficient.

Development

Once the specs are produced the programmers, artists, writers, and testers can build the tools and content required to fulfil the business needs.

During development some "alpha" testing is done to ensure that everything hangs together and works.

Testing

The testing phase is where the bugs are flushed from the system. All code has bugs; the trick is to remove any bugs that are noticeable. This implies that testing effort should closely follow the business requirements document so that the most important business tasks are tested the most.

Generally, no formal testing plans are created for maintenance requests.

Bugs are generally reported back through a bug tracking spreadsheet that is used at review and status meetings.

Deployment

Deployment is the final phase of the project. For maintenance items we flip the approval and deployment steps. The changed code is verified on a staging server and, once approved, moved to the production server.

Project Launch

The final code is verified on a staging server and approved, usually via email.

Deployment

The changed code, along with any database changes if necessary, is moved to the production server and tests are run to ensure that the site is operating correctly.