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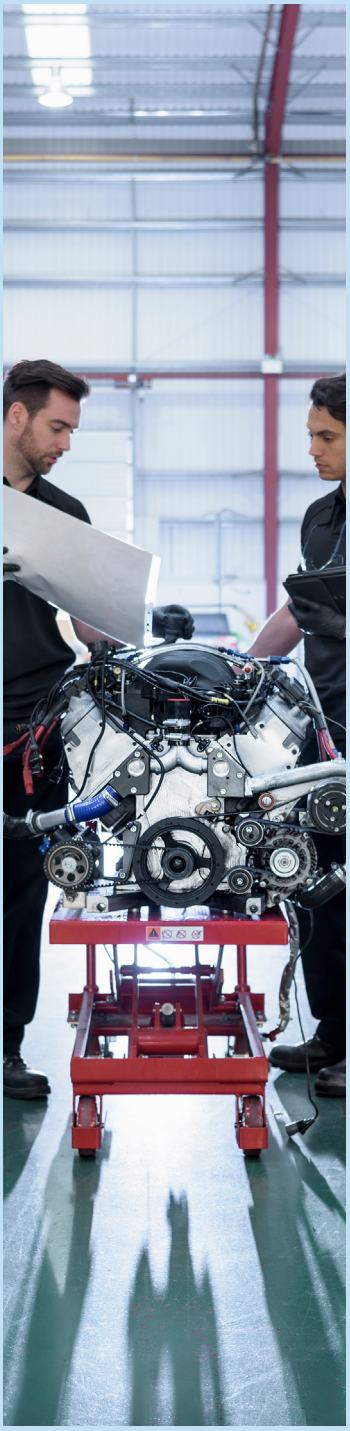

TAKING SEO TO THE NEXT LEVEL: A QUALITY ENGINEERING AND VALIDATION APPROACH

Abstract

The increased demand for digital testing is forcing various industry segments to use non-conventional testing methods instead of conventional ones. Search engine optimization (SEO) plays a pivotal role in ensuring that retail and e-commerce businesses sustain and grow amid competition. Though, there are commercial testing solutions for some SEO features such as crawling, indexing, etc., there is no holistic solution to deliver quality SEO features such as sitemap validation, robot tag validation to name a few. This paper provides a practitioner's view on the types of SEO that are important for a successful search strategy. It also explains the Infosys quality engineering and validation approach to effectively validate On-Page, Technical and Off-Page SEO features by leveraging non-conventional automation solutions.

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Introduction to SEO

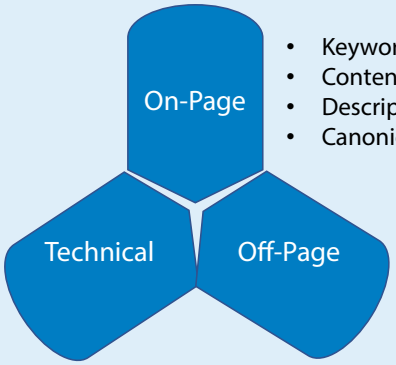
Search engine optimization (SEO) aims at improving the quality and quantity of website traffic to a website or webpage from search engines. This translates to better rankings and higher visibility of the searched pages. In turn, it helps users access highly relevant content in the first Search Engine Results Page (SERP). At the moment, the global search engine market is dominated by Google. However, regional variations exist with local providers being more popular in certain countries like Baidu in China or Yandex in Russia.

As per leading industry reports, more than 40% of companies have moved to a digital-first approach to improve customer experience. 50% of the CEOs of such companies say that the improvements have increased revenues. Improper SEO implementations lead to deterioration of page rankings that, in turn, impact the business by affecting brand image, hindering customer experience, lowering retention, increasing cost, and creating other legal implications.

Types of SEO

Every online business strives to build the right interface for its customers. To develop the right web pages, various teams in the IT organization need to collaborate, brainstorm, create, and manage their web sites. Teams are not just limited to developers, web designers and content managers but can extend beyond non-IT stakeholders like marketing, analytics teams, etc.

Any successful SEO search strategy can be broken down into three main types.



- Keyword optimization
- Content creation
- Description / Meta-description
- Canonical, HREF and Alt tags

- Non-content related
- Crawlability and Indexability
- Structure of data

- Link building
- Blog posting
- Social media sharing

Fig 1: Types of SEO

1 On-Page SEO – On-Page covers elements that can be controlled on each webpage of the website to make it easier for search engines to find, index and understand the content. There are many such elements that can be controlled to facilitate search engines in deciphering content from Sites-or-Pages (SoP). For example, webmasters or web designers should provide a page title and related descriptions for every web page. Some best practices while provisioning a title for SoP include:

- Title should not be changed frequently
- Eliminate duplicate words
- Avoid rephrasing keywords
- Limit the length of the title to industry standards

2 Technical SEO – This constitutes the actual infrastructure associated in providing appropriate content to the user. Specifications like crawlability, speed, indexability, mobile friendliness, etc., must be considered, especially if the business is web driven. Technical elements can be improved by proper implementation of 'disallow tags' in robots.txt and 'no-index meta tags' in page source.

3 Off-Page SEO – Off-Page SEO covers elements that are outside the website but still impact its performance such as quality inbound links. It includes all external links related to the subject matter content that the user is interested in as well as those referring to the Sites-or-Pages (SoP) in an ethical manner. This is certainly more difficult to implement than on-page due to limited control by the site owner. It entails building relationships with other websites (backlinking or inbound linking) by creating attractive content or reaching out to the people who run other websites. A classic example of semi-managed link-building is Wikipedia.

Challenges in implementing SEO

There are several parameters that can be configured by webmasters when designing sites, making it crucial for teams to reach a consensus on categorizing and implementing the right set of SEO features. This requires an in-depth understanding of the requirements and objectives of the organization. Some of the challenges faced by companies when developing an SEO strategy are listed below:

- Finding content writers to eliminate duplicates and create high-quality content
- Understanding the audience through keyword analysis
- Using technical SEO for on-premise infrastructure needs
- Understanding search engine algorithms that are frequently upgraded
- Finding the right SEO validation approach

SEO validation approach

Each SEO implementation is unique and, hence, a one-size-fits-all approach cannot work. SEO features are vast in terms of technology and tools used. Many tools are quite specific and can be used to test only certain focus areas. For instance, crawling tools cannot test features related to keyword rankings. To start with, one will need some basic toolsets to begin effective SEO testing. These tools are:

- Site analytics tools
- Keyword ranking tools
- Broken link validators
- Broken image validators
- Content validation tools
- Link checking tools (backlinks / external links)

The Infosys Approach

Infosys has developed a 'Quality Engineering and Validation Approach' for SEO implementation. The approach follows an Elucidate-Evaluate-Execute-Enhance model, or 4Es, to support 360-degree collaboration with all SEO stakeholders. It leverages the Plan-Do-Check-Act (PDCA) methodology, acting as a one-stop solution that ensures continuous process improvement.

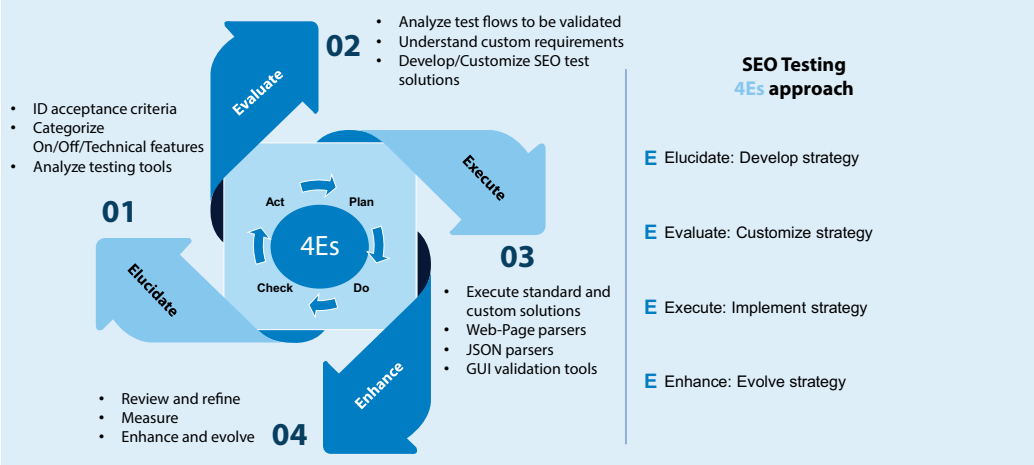


Fig 2: 4Es of the Infosys Quality Engineering and Validation Approach

1. Elucidate: Develop the strategy – The first step in the validation process is to focus on the key acceptance criteria that are critical for developing the right strategy. Infosys recommends conducting working sessions with SEO implementation teams to categorize the types of SEO needed from a technology implementation perspective. This will help testing teams gear-up with the right set of tools/utilities.

2 Evaluate: Customize the strategy – The second step in the validation process involves understanding how a specific requirement can be addressed and then creating a custom solution for it. It is advisable to have a core component and a non-core component for the solution. The core component should be flexible enough to be modified as per user-specific definitions.

3 Execute: Implement the strategy – Implementing a clearly defined solution is key to successful SEO. The solution should be able to perform the following key activities:

- Parsing utilities
- HTTP client status code checks
- JSON parsers
- Page-source tag comparisons

4 Enhance: Evolve the strategy – Infosys recommends conducting periodic reviews once the core and specific solutions are established. The more specific these solutions are, the more customized the maintenance or enhancements will be. If business teams want specific requirements to be validated periodically, then understanding the frequency – daily/ weekly/monthly – becomes a criterion for testing. Hence, such variations help improve the overall SEO strategy.

Fashion retailer optimizes SEO testing with Infosys approach

A leading fashion retailer selected Infosys as their quality assurance partner. We helped them implement an open-source 4E-based quality engineering solution to ensure one-touch automation. One of the key features of this solution is its shift-left adaptability. Overall, this has led to 60% reduction in validation cycle time. It is also providing comprehensive validation that was previously done using selective sampling techniques. Further, the solution can be extended as a plug-and-play utility and enhanced to meet other industry segment needs as well.

Our approach has helped the client with benefits such as:

- Validation of over 200 standalone websites
- Approximately 90% manual execution effort savings
- Auto-notifications for SEO results reporting

Conclusion

Industries across verticals are increasingly embracing digital technologies and competing to make their websites more attractive to consumers. In this endeavor, the implementation of SEO features is becoming critical with demand for high-quality responsive web and mobile site designs. While validating SEO features may appear far-sighted, technology enhancements have paved the way to effectively establish a defined quality assurance approach to SEO validation. In order to achieve maximum business benefits, IT organizations should consider various nuances of technology and SEO features, backed by both in-house and commercial tools, when handling unique problem statements. The 4E approach from Infosys helps companies elucidate, evaluate, execute, and enhance their SEO strategy through quality engineering. It enables businesses to reap maximum benefits with optimal investments.

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