Web-Based Programming: A Veritable Tool for Security and National Development

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Abstract: In all industrialized countries and increasingly in developing countries web based computer systems are economically critical. More and more products and services are incorporate inside the web-based information system. Education, administration, banking, oil and gas and health care services etc. are all dependent on a web-based-flavoured information communication technology. The effective functioning of a modern economic and political system which is a precursor to national development depend on the skill flaunted by IT expert to produce a flawless and less complex web-based products and services. This paper proposes an effective method of achieving national development and security via the resourcefulness and instrumentality of the numerous activities on the Web platform. The proposed model is anchored on four components: green computing and energy star; cloud-based services; Web start-ups; and adequate government response programmes..

1. INTRODUCTION

The past thirty years, the Internet, has become a critical enabler of social and economic change, transforming how government, business and citizens interact and offering new ways of addressing development challenges. And today, with the scalability of the Web technologies, there are things like Websites, Social networks, affiliate marketing, blogging, tweeting, virtual library, online survey, virtual office. Also, there are new terms like "apps industry", "apps economy", "apps start-ups", "microwork" etc.

This technological transformation has been made possible because the newest generation of Web platform (Web 2.0) enables one to create interest groups on the internet and share information in form of photos, videos, music, logs of plans, web browsers bookmarks etc; creating a rich array of user-generated content. With this crop of activities, which are too numerous to mention, private and public institutions can take advantage of the Web blossom there economy while ensuring national security.

Research shows that Facebook apps alone created over 182,000 jobs in 2011, and that the aggregate value of the Facebook app economy exceeds $$12 billion. Web programming through its startup programme is creating over 46,000 jobs and 12billion dollars economic activity in UK alone [10].

National development could be defined as the ability of a county or countries to improve the social welfare of the people e.g by providing social amenities like quality education, potable water, transportation infrastructure, medical care, etc. Most national development plan seeks to adopt a framework of inclusive growth, which is high growth that is sustained, generates mass employment, and reduces poverty. While national security is the requirement to maintain the survival of the state through the use of economic power, diplomacy, power projection and political power. The concept of national security was developed mostly in the United States after World War II. Initially focusing on military might, it now encompasses a broad range of facets, all of which impinge on the non-military or economic security of the nation and the values espoused by the national society. Accordingly, in order to possess national security, a nation needs to possess economic security, energy security, environmental security, etc. Security threats involve not only conventional foes such as other nation-states but also non-state actors such as violent non-state actors, narcotic cartels, multinational corporations and non-governmental organisations; some authorities include natural disasters and events causing severe environmental damage in this category. Measures taken to ensure national security include: using diplomacy to rally allies and isolate threats; marshalling economic power to facilitate or compel cooperation; maintaining effective armed forces; implementing civil defense and emergency preparedness measures (including: anti-terrorism legislation); ensuring the resilience and redundancy of critical infrastructure; using intelligence services to detect and defeat or avoid threats and espionage; and to protect classified information using counterintelligence services or secret police to protect the nation from internal threats.

2. ASSESSMENT OF WEB PROGRAMMING TO DATE
2.1 Summary of the History of Web Programming

Though early stage of the Web evolution, Web 1.0, which existed between 1990 and 2000 [5] enjoyed some level of growth due to its multiuser interface; single point maintenance

and updates; distributed and hyperlinked documents etc. The level of popularity and user activity was still low owing to the fact that most of the websites developed using web1.0 was static and operated in brochure architecture with only professional web designers producing the content for users to access.

The Web platform we enjoy today, Web 2.0 has grown tremendously with resurgence of popularity and interest from millions of companies and billions of users across the world. Web 2.0 operates in architecture of participation were companies only provide the platform and users generate the content. Most sites on the Internet today like wikis, blogs and social media sites all present user generated content bringing the shift from few powerful professionals (programmers) to many empowered users[11]. In-lieu of this development, so many tools have been introduced to enable more user participation such as the Rich Internet Applications (RIA) and AJAX (Asynchronous JavaScript and XML) technologies. These technologies are used to develop web applications, which look and behave like desktop applications. At the root of this Web 2.0 evolution, which is triggered by technologies like AJAX, Document Object Model (DOM), RIA, frameworks etc, is enshrined the concept of Object-Oriented Programmed (OOP). Hence, the knowledge of these tools and OOP cannot be ignored.

2.2 Literatures on web programming

Many of the studies in the area of web application development have mainly focused on the evolution of web application and comparison of web application development languages. Jazayeri wrote on trends and status quo of web application [13]. Ronacher presented security related issues in web application [17]. Voslro and Kourie wrote on concepts and web framework [17]. Purer highlighted some differences, advantages and drawbacks of PHP, Python and Ruby [16]. He compared the languages based on history, evolution, popularity, syntax, semantics, features, security and performance in web application environments. Cholakov analyzed PHP and summarized some drawbacks[3]. Gellersen and Gaedke in their article [8], overviewed object oriented web applications and identified object-oriented model for web applications, they found that XML technology contributes in enabling high level abstractions for design level modeling in a markup language. Mattsson identified the strengths and weaknesses of object oriented frameworks [12]. Finifter and Wagner explored the relation between web application development tools and security [6]. Chatzigeorgiou et al, evaluated object oriented design with link analysis [2]. Paikens and Arnicans explored the use of design patterns in PHP-based web application frameworks [14]. French presents a new methodology for developing web applications and web development life cycle [7]. Copeland et al, in their article titled "Which web development tool is right for you" discussed and compared various tools for web application development [4].

However, not too many studies have been conducted in the area of impact of object oriented programming on web application development. This research aims at discussing the impact of object oriented programming on web application.

2.3 Challenges with web programming

Some of the identified challenges with web programming include:

1. Requires expert knowledge: developers or programmers of Web applications are required to have special knowledge in basic programming concepts, client-side and server-side scripting, Internet technologies and client-server technologies.
2. Provisions of power: Devices which run and support web applications runs on power; hence, there is need for provision of constant supply of power and integration of low power devices.
3. Internet connection
4. misuse of technology and information overload
5. Cyber crimes
6. Virus and worms
7. Environmental pollution: Most of the electronic devices – including Web- support devices – are toxic and bio non-degradable devices; unfortunately, the developing world dump sites for these devices. They are in most cases not disposed properly; thereby causing environmental hazards.

2.4 How Web Programming Can Boost National Development and Security

At a time of slowed growth and continued volatility, many countries are looking for policies that will stimulate growth and create new jobs. Information communications technology (ICT) is not only one of the fastest growing industries – directly creating millions of jobs – but it is also an important enabler of innovation and development.

The number of mobile subscriptions (6.8 billion) is approaching global population figures, with 40% of people in the world already online. In this new environment, the competitiveness of economies depends on their ability to leverage new technologies. Here are the five common economic effects of ICT.

1. Direct job creation: The ICT sector is, and is expected to remain, one of the largest employers. In the US alone, computer and information technology jobs are expected to grow by 22% up to 2020, creating 758,800 new jobs. In Australia, building and running the new super-fast National Broadband Network will support 25,000 jobs annually. Naturally, the growth in different segments is uneven. In the US, for each job in the high-tech industry, five additional jobs, on average, are created in other sectors. In 2013, the global tech market will grow by 8%, creating jobs, salaries and a widening range of services and products.

2. Contribution to GDP growth: Findings from various countries confirm the positive effect of ICT on growth. For example, a 10% increase in broadband penetration is associated with a 1.4% increase in GDP growth in emerging markets. In China, this number can reach 2.5%. The doubling of mobile data use caused by the increase in 3G connections boosts GDP per capita growth rate by 0.5% globally. The Internet accounts for 3.4% of overall GDP in some economies. Most of this effect is driven by e-commerce – people advertising and selling goods online.

3. Emergence of new services and industries: Numerous public services have become available online and through mobile phones. The transition to cloud computing is one of the key trends for modernization. The government of Moldova is one of the first countries in Eastern Europe and Central Asia to shift

its government IT infrastructure into the cloud and launch mobile and e-services for citizens and businesses. ICT has enabled the emergence of a completely new sector: the app industry.

4. Workforce transformation: New "microwork" or "start-ups" platforms, developed by companies like oDesk, Amazon and Samasource, help to divide tasks into small components that can then be outsourced to contract workers. The contractors are often based in emerging economies. Microwork platforms allow entrepreneurs to significantly cut costs and get access to qualified workers.

5. Business innovation: In OECD countries, more than 95% of businesses have an online presence. The Internet provides them with new ways of reaching out to customers and competing for market share. Over the past few years, social media has established itself as a powerful marketing tool. ICT tools employed within companies help to streamline business processes and improve efficiency. The unprecedented explosion of connected devices throughout the world has created new ways for businesses to serve their customers.

3. THE WEB-BASED MODEL FOR NATIONAL SECURITY AND DEVELOPMENT

Our proposed Web-based model for achieving development and national security will be anchored four major components: green computing and energy star; IT start-ups; cloud based infrastructure; and adequate government response project. Our idea is to propose a system that will empower the teaming youths through the start-ups, cloud services and government programmes; as well the use of economically viable and eco-friendly computer through the green computing standards.

1. Green computing and Energy star: Green computing is the design, use and disposal of computers and its associated resources in an eco-friendly manner. In age where world leaders making strong efforts in other to achieve sustainable development, there is every need to respect and promote our ecosystem [19] – the Igbo man will say "Ndu bu isi", meaning life is the head.

   Green computing aims at providing economic viability of improved computing devices. Green IT practices include the development of environmentally sustainable production practices, energy efficient computers and improved disposal and recycling procedures. Energy star is one the program that implements green computing.

2. Web-based start-ups: These are small businesses that derive their benefit from the numerous activities on the Web platform. They range from digital marketers, social media specialist, Web designers, Network administrators, Web programmers, Media content developers, Hardware engineers, Affiliate marketers etc

In London, the Silicon Roundabout and City Tech Initiative has generated over 46,000 jobs and addition 12 billion Euros to the economic activities over the past four years via their clusters of start-ups. The Web start-ups in UK have generated some many jobs to the extent that they have "apps economy" [10, 15]. Also in 2012, oDesk alone had over 3 million registered contractors who performed 1.5 million Web-related tasks. This trend had spill over effects on other industries, such as online payment systems. The Web has also contributed to the rise of entrepreneurship, making it much easier for self-starters to access best practices, legal and regulatory information, and marketing and investment resources

3. Cloud based services: These are services which are delivered through the internet instead of a local computer/device. In the simplest terms, cloud computing means storing and accessing data and programs over the Internet instead of your computer's hard drive. The cloud is just a metaphor for the Internet. When you store data on or run programs from the hard drive, that's called local storage and computing.

   With cloud computing, a user form large corporation or from small start-ups can log into a Web-based service which hosts all the programs he or she would need. Remote machines owned by these companies would run everything from e-mail to word processing to complex data analysis programs from the internet; thereby saving cost and space, without losing standards [9, 1].

4. Government Response Project: since our independence in 1960, different Nigeria government have implemented one project or the other geared towards addressing the plight of the poor masses as well as improving the standard of people. This in FEDAMA project; the NEEDS project etc. How many of this project have addressed technology and to what extent? What about things like: IT Development Banks; IT Micro Loans; Subsidy programme for common IT components like breadboards, resistors; IT- research centres/institutes; IT local content bill (mention but a few) ?
   In our Information – driven era, our government should provide adequate response programmes and policies to groom small IT start-ups and to strengthen the bigger ones.

4. CONCLUSION

In this paper we have discussed how national development and security can be achieved through Web programming and the numerous activities of the Web. Our idea is to propose a system that will empower the teaming youths through the start-ups, cloud services and government programmes; as well the use of economically viable and eco-friendly computer through the green computing standards.

5. RECOMMENDATIONS

In this paper we have discussed how national development and security can be achieved through Web programming and the numerous activities of the Web. Our idea is to propose a system that will empower the teaming youths through the start-ups, cloud services and government programmes; as well the use of economically viable and eco-friendly computer through the green computing standards.

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