

# GeneXus: Deciphering the Problems of Software Development

**GeneXus™**



## White Paper

**GeneXus: Deciphering the Problems of Software Development**

**Author: Kapil Ambwani**

**13<sup>th</sup> July 2016**

# Introduction

This document discusses the most common challenges of software development faced by product managers and presents GeneXus as a solution. This document discusses how GeneXus helps organizations to achieve better efficiency in software development and to develop software solutions that can evolve with time.

GeneXus is a knowledge representation based development tool, mainly oriented towards enterprise-class applications for web, smart devices and the Microsoft Windows platform. A developer describes an application in a high-level, mostly declarative language, from which native code is generated for multiple environments.

Learn more about GeneXus: <http://genexus.com/company>

## About the Author

Kapil Ambwani is a freelance GeneXus consultant (independent contractor). He is passionate about tech start-ups and has extensively worked with start-ups across domains.

Kapil holds a degree in computer science and engineering and has 4 years of experience in software development using GeneXus. He is available to answer your queries and is very responsive to emails; don't hesitate to drop him a line.

Email: [kapilambwani@gmail.com](mailto:kapilambwani@gmail.com)

LinkedIn: <http://lnkd.in/kapil>

Twitter: <https://twitter.com/KapilAmbwani>

Phone: +91 9582525215

### Disclaimer

The views and opinions expressed in this white paper are those of the author and do not necessarily reflect the official policy or position of the publisher.

# 1. User Centred Software Development

Technology is the most important concern for companies that build their businesses around innovation. Software solutions are built to help companies meet their business objectives and attain scale. Modern business trends and technological advancements mandate that software solutions be continuously aligned with consumer expectations. Organizations must be able to identify bottlenecks in meeting their business objectives and make decisions based on observed consumer behavior patterns. To understand consumer behaviour, Organizations must have a well defined strategy to collect and utilize data about how customers use their software solutions.



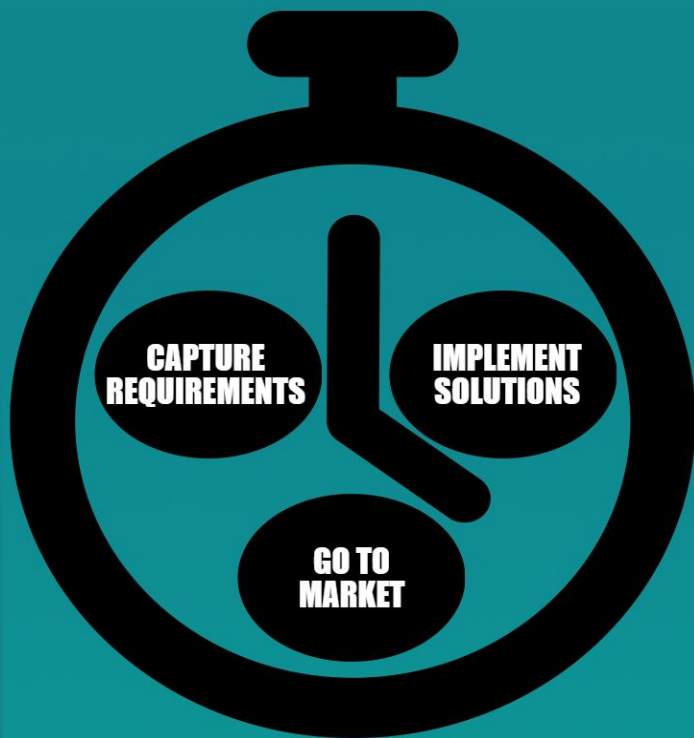
Analytics can be used to understand consumer behavior. Some of the most common questions answered by Analytics are

- Which features of the software are used the most?
- Who are the users of the software?
- What are the activities of users on software?
- Is the software easy to navigate?
- Are the users hesitant to use certain features?

GeneXus provides inbuilt controls to integrate Google Analytics into websites and smart device applications. Developers can integrate Google Analytics by simple drag and drop feature and customize the analytics they want to use for decision making.

## 2. Development Time

Time to build or evolve software solutions can be a crucial factor in the race of customer acquisition. Faster implementation means shorter sprints and more user stories covered within a specified period of time. Business Organizations try to lure new users by offering more features and to maintain customer loyalty by continuing to offer more services than their competitors do. In the age of growth hacks, where all businesses are in the race of acquiring new customers, the organization that is the fastest to capture and implement the requirements of its target audience is bound to make maximum gains in terms of user acquisition and engagement.



Faster implementation means **shorter sprints and more user stories** covered within a specified period of time. **More features can be integrated, tweaked and tested** in each sprint and this can give the company a significant advantage in the market space.

GeneXus provides a smarter and more efficient way of software development by automating the most common tasks of software development. Software solutions implemented using GeneXus are easy to maintain and can evolve with time through GeneXus upgrades.

### 3. Maintainability

Contrary to the popular belief, maintenance of software products is not only about bug fixing but also about implementing functional enhancements suggested by users.

Manny Lehman, a renowned computer scientist, in his journal titled '*Journal of Software: Evolution and Process*' concluded that software maintenance is an evolutionary development and that software maintenance decisions are aided by understanding what happens to systems over time.

#### CATEGORIES OF SOFTWARE MAINTENANCE ACTIVITIES



Lientz and Swanson, renowned computer scientists at UCLA, California, observed software development practices at 487 companies and found that companies in the sample set spent time on software maintenance activities as follows

**Corrective Maintenance** (diagnosing and fixing errors): 21.7%

**Adaptive Maintenance** (modifying the system to cope with changes in the software environment): 23.6%

**Perfective Maintenance** (implementing new or changed user requirements): 51.3%

**Preventive Maintenance** (increasing software maintainability or reliability): 3.4%

**Source:** Lientz, B.P. and Swanson, E.B., *Software Maintenance Management*, Addison-Wesley Publishing Co., Reading, MA, 1980.

The evolutionary nature of software systems is at the core of GeneXus philosophy. GeneXus makes it easy to evolve software wherein the code and core functionality of the software remain the same and certain components are to be customized over time. GeneXus releases an upgrade every two months, in which it factors in the latest trends of the market.

## 4. Continuous Evolution

Market trends change overtime and users' definition of fair value for user experience keeps rising. To keep up with the market and to enhance user experience, companies must continuously evolve their software products.

After introduction of HTML 5, flat design became the latest trend and all companies started to migrate towards flat design. Many companies had to spend significant amount of time and money in this transition but companies using GeneXus had to simply upgrade to GeneXus Evolution – 3 and could migrate within 2-3 weeks by customizing a few pages.

### MARKET TRENDS TIMELINE

#### 2008

- *WAP SITES*
- *EMAIL NOTIFICATIONS*
- *IMAGES*
- *FLV VIDEOS*

#### 2012

- *RESPONSIVE INTERFACES*
- *NOTIFICATIONS*
- *CAROUSELS*
- *ANIMATIONS*

#### 2014

- *FLAT DESIGN*
- *USER ENGAGEMENT*
- *BANNERS*
- *INFOGRAPHICS*

Through regular and timely upgrades, GeneXus ensures that software systems built over GeneXus keep up with the market trends and dominating technologies such that these software systems never hit a point of obsolescence.

## 5. Operational Challenges

Software development processes are made more complex by challenges of human resource and dependency management. Continuously evolving market trends of software industry require software companies to invest in learning and development.

### OPERATIONAL CHALLENGES OF SOFTWARE DEVELOPMENT



GeneXus automates the most common processes of software development, streamlining the tasks of software development. Automated tasks and streamlined processes not only increase the efficiency of the programmer but also reduce the efforts required for training, dependency management and knowledge transfer.

# Conclusion

In an environment of constantly changing 'Software Specifications' where specifications are mostly changed to keep up with the expectations of users, GeneXus provides an agile platform to build software systems and enhance them over time. The time saved in implementation can be utilized in research and development. Automated software development processes supported by GeneXus provide an opportunity to implement enhanced software systems and thus enable organizations to gain advantages and save costs at the same time.

## About GeneXus

GeneXus is a tool to automatically create, develop and maintain mission critical multi platform applications that can easily adapt to changes in business and new possibilities offered by technological evolution. Application development involves analysis, design and implementation. GeneXus performs automatable tasks, allowing development efforts to be focussed on non automatable tasks like interacting with users and understanding users' problems.

Learn more about GeneXus: <http://genexus.com/company>

Training videos: <http://training.genexus.com>

**Contact:** For more information about GeneXus or to discuss any requirement related to software development using GeneXus contact [kapilambwani@gmail.com](mailto:kapilambwani@gmail.com)



# References

1. Manny Lehman, Journal of Software: Evolution and Process
2. Lientz, B.P. and Swanson, E.B., Software Maintenance Management, Addison-Wesley Publishing Co., Reading, MA, 1980.
3. Official GeneXus website: [www.genexus.com](http://www.genexus.com)
4. GeneXus training videos: <http://training.genexus.com>