

Social Network Complexity, Axiomatic Metrics to Determine Optimally Effective Adoption

A White Paper

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Executive Overview

Introduction

Social Networks

Social Networks, are vehicles for personal introduction and the viral delivery and exchange of ideas or information. Social Networks support an implicit, asynchronous and geography-independent communicative channel between peers.

Rationale

The most valuable Network is the one that gets used. If individuals are unable to locate relevant introductions and valuable information, or if they become disoriented within the operation and navigation of a site, they cannot interact effectively.

The author also shall submit that there is an intimate relationship between visible artifacts and measures of complexity and the condition of the substrate software structures, and therefore to the lifespan and current life-cycle stage, of the underlying system architecture. Software is “end of life” when complexity causes a maintainability collapse, where creating a new system is economically preferable to maintaining the status quo. Using an educated observation of complexity in the resulting user experience, offers an accurate indicator of the underlying software in terms of fitness and sustainability.

Intended Audience

This technical paper is intended for designers, developers, executives and enterprise systems analysts, engaged in creating scientific methodologies for the measure and recording of complexity, as a barrier to adoption and measure of software quality.

This paper outlines use of empirical evidence, observations and axiomatic metrics in the three dimensions of complexity, and to explains briefly, how they impact audience participation and ultimately, software longevity and maintainability.

This paper is not intended to promote any particular methodology or specific set of measures, but rather to illustrate a well rounded approach to identification and classification of user complexity, and its intimate relationship to the condition of the underlying software architecture.

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Goals

A Cohesive Understanding

An integrated understanding of the factors that define Social Network complexity is important. This paper seeks to answer the question, “What is a well-founded and logical understanding of the factors impacting Social Network complexity and its associated barrier to adoption and effective use of the Network?”

An enterprise scale organization will apply a formal and rigorous approach to validate, or demonstrate the effectiveness of this model. This can be achieved by implementation of classification tree analysis techniques to predict or explain responses on any categorical dependent variable.

Casual Practicality

Practically speaking, for the casual observer, reviewing a few simple metrics informally substantiates most Social Networks to be on one side of the complexity spectrum or the other. We're referring here to certain cardinal principles that guide both user experience and give insight to the complexity or uniformity of underlying technologies and their architectural condition.

Is the underlying software near end-of-life, about to collapse under its own weight? Or is the architectural design more like a geodesic dome, uniform, consistent and capable of withstanding strain? Put simply, a complex user experience indicates software structures that lack uniformity and are typically more susceptible to collapse or closer to nearing “end of life” life-cycle economics.

Axiomatic Principles

A Heuristic Model

The Value of Simplicity

The value of simplicity is self-evident. Put another way, complexity means distracted effort, simplicity is focus. Complexity is the salt in your proverbial software soup, it's easy to put in, and nearly impossible to take out. Over time, complexity acts like spin on a bowling ball rolling down the alley, momentum will carry it to straight for some distance, as it nears the pins the spin takes greater and greater effect, and ultimately will determine a strike or a gutter ball.

The set of simplicity principles, values and intuitions herein, are held common by experts in greatly varied disciplines. Over time, simplicity is the single most important criterion for a Social Networking engineering group, or indeed any software application developer to measure their work against.

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Defining Complexity

Complexity is both a perceived and objective construct. Social Network complexity can be examined through such factors as navigating between pages and examining the structure of the subject matter, the core informational intent of each page. Functionally simple and consistent interactions are the only truly universal values of usability, held common to all users.

We can make a rather casual analysis of Complexity via simple Visual Segmentation Analysis, how many operational areas are there on the screen? Are they distinct? Are they consistent and uniformly presented? Simply asking, “are there five main navigation tabs, or fifteen?” can reveal predilection.

Observing Complexity

Social Network complexity can be observed on different levels for different individuals, based on how an individual ultimately perceives the Social Network, their own previous experiences, or what the individual expects from the Social Network. Individual experience or input may be valid, however it is not practical to attempt to address individual and specific user reactions. A scientific discipline must address the needs of the broadest audience by careful observation within a framework of only the most fundamental, universally application and commonly held values.

That's not to imply that specific, perceptive and objective means cannot accurately measure complexity, but it does suggest that there are subjective, cultural, experiential and scientific measures and observations which all are interrelated and therefore must be taken into account as a whole, as a universal generality.

Culture Of Complexity

Complexity in a Social Network can also be observed in matters regarding a site's character, and initial impressions. Is the signup process easy to operate or does it seem over complicated, burdensome or even invasive?

These first impressions, set the tone for the Social experience for all members of the Network. Continuous warnings to abide by rules and regulations, error messages and complicated interactions are bellwether signs and the hallmark of pervasive and often patently bankrupt and imprudent design values.

Mitigation of Complexity

Perhaps the single greatest mitigator of complexity, is adoption of standard paradigms. These paradigms rely on preexisting notions to breakdown barriers to effectiveness and improve practicality. It has long been noted that beliefs and attitudes toward known interaction paradigms correlate with rapid adoption, when an individual has a positive image or experience from the past [Regan and Fazio, 1977; Fazio and Zanna, 1981].

The Three Dimensions of Complexity

A Comprehensive Approach

To form a truly axiomatic framework and model for metrics, three dimensions of complexity must be observed, noted and measured with concurrence:

Cognition Dimension

Human cognition, and how it influences or reveals individual cognitive overhead or resistance to adoption. Examination of the uniformity of vernacular, Titles and static language elements. Measure adoption of preexisting, simple or ubiquitous paradigms.

Content Dimension

Page content, layout and the readability of information that is available on it. Organization of information areas, e.g. a newspaper or magazine layout. Take note of layout alterations during navigation, of differing design styles, navigations, functions, fonts or color.

Operational Dimension

Operational form, with respect to user interface, navigation, and structure of utility. Consistency of interaction operands and their corresponding Titles and placement. Simplicity and consistency of navigation and page state as well as taking note of availability and visibility of common tools and indicators.

Value In Quick Analysis

Even cursory analysis can faithfully reveal patterns of simplicity or complexity, but such determination requires at least a peripheral understanding of perceptive measures, objective measures, and the combination of both in order to best understand which artifacts reveal the most objective, fundamental and insightful evidence.

Cardinal Principles in Measurement and Observation

Clutter Is Made From Little Things

Query of Cognition Dimension is to ask why a *Text Field Title* uses three words, when only two would do. An economy of words extends the capacity for serving information more effectively, or to paraphrase, removing something is the same as making more visible that which remains. This value cannot be overemphasized.

Content Is King

The Content Dimension can be observed most easily, but is perhaps the most problematic to fully and accurately quantify. One must ask, "How many different subject matters are fully described on the page?", "How

readable is the page's core content?" or "How clearly does the page layout, divide and deliver information to the eye?", "Is the site itself, an appealing visual experience?"

Less Is Always More

The Operational Dimension expressly details uniformity and consistency in arrangement and behavior of operators, navigators and their resulting system responses. Does each page contain a single core subject or are there disjointed functions, gathered from diverse operations in differing locations? If common operators are obscured or disorganized, recurrent functions become more complex. Uniformity and consistency of even complex interaction patterns is recognized as more simple than a variety of operational paradigms.

Adopt The Widely Adopted

Human Gestalt tends to make us ignore the familiar and the predictable, it is in this way that even complex paradigms are, effectively inert as a barrier to effective adoption. Already knowing how to drive won't limit one's ability to switch between a familiar automobile model, and another.

In Conclusion

You Know More Than You Think

Part of the rationale of this White Paper is to advise and enlighten many individuals who are deeply concerned about technical operations and results, yet lack the computer science and engineering discipline or sophistication to reach, and defend their own personal conclusions about such matters of great import.

Conclusive knowledge and judgement is not exclusively the realm of the trained computer scientist and software engineer. There are elementary rudiments in axiomatic measure of software construction, complexity and resulting quality, which can be observed and implemented by "mere mortals".

If you are an executive, or company owner using high technology for mission critical operations, you are likely confronted with issues of quality and life-cycle on a regular basis. It is the hope of the Author that your future choices and experiences are more richly informed, and more accurately executed.

About The Author

Jesse Tayler has unique experience in computer science and software engineering

Born 1967 in New York City, to acclaimed University Professors [Irene](#) and [Edward](#) Tayler, Jesse showed interest in mechanical, electronic and scientific endeavors from his earliest childhood years.

Starting in 1975, at age 8, Jesse used his mother's tenure to roam freely in the computer labs at MIT and Lowell Institute. During these formative years, Jesse was mentored by computer legends such as [Marvin Minsky](#) and [Seymour Papert](#). Jesse learned to solder working computers from spare chips, and to code in the low level assembly language used to maintain Papert's [Logo Programming Language](#) being used to control amazing mechanical [Turtles](#) in these historic University labs. Jesse founded his first business selling software around Cambridge's "Tech-Square" in 1985.

In 1988 Jesse's mastery of OO-Programming and UNIX systems made his passion for Steve Jobs's revolutionary [NeXT Computer](#) a highly valued commodity. One of Jesse's award winning creations on the NeXT, is considered a fore-runner, or "granddaddy" of the iTunes Music Store, [Wired Magazine](#) reported: "*copy the license.. paste. Boom. You now have software. No store. No hassle*". Jesse's lauded [Electronic AppWrapper](#) multimedia software catalog and [Tim Berners Lee](#), who used his NeXT Computer to create the [World Wide Web](#), were two of the most innovative and acclaimed software inventions harnessing the power of the NeXT.

In 1995, Jesse's reputation as a world-class engineer, propelled his startup venture, [Object Enterprises Incorporated](#) into lucrative agreements engineering mission critical, web application technology with large corporate customers including MCI and AT&T.

Over the past quarter century, Jesse's entrepreneurial skills have been engaged as Chief Engineer, Executive Officer and Co-Founder with at least nine successful high-tech and Silicon Valley startup ventures. Responsible from incorporation through purchase and exit strategy, Jesse's meritorious dot-com experiences demanded attracting and maintaining top technical talent from Seed Funding to Rounds totaling tens of millions.

CEO of [NetModular](#) since 2001, Jesse has emerged as one of the pioneering authorities on the engineering, and business strategy of effective Social Networking. Preceding [Friendster](#), [Facebook](#) or [myspace](#), Jesse designed, engineered and launched industry-leading Social Networking sites. These early professional networks were recognized in the [WSJ](#) and other major media.

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