

Background

AstraZeneca is a significant player in the pharmaceutical industry. Between existing products and new product candidates, referred to as emerging brands, they have well over thirty offerings in the market. Independent teams, referred to as brand teams, manage each major product or groups of minor products. The brand teams are responsible for developing the strategic plans for defending their products in the market and gaining market share. To support the brand teams' need for strategic planning, a team was assembled in 2002 to build the first fully functional strategic planning system (See case study: Strategic Planning At AstraZeneca, Sergio C. Carbone, 05/2004). A key reason for the success in the strategic planning system project was the team's choice to use a Human Design Pattern (HDP). The HDP enabled the team to build an average of 75% more functionality than standard development approaches.

Developing the new planning system proved to be a challenge. Although AstraZeneca had an idea of what they wanted the planning system to offer, they needed to see the product in use to fully understand its effects on the business. To accommodate this unknown, the system was constructed with the assumption that AstraZeneca would mature it over time with further releases. Also, until the planning tool proved its value to the business, the investment in the system was to be kept to a minimum.

Developing the planning system required the creation of hundreds of data attribute collections that were displayed on dozens of client screens. The server side support for the client entry screens was constructed from hundreds of server side programs. These server side programs managed the business logic and database storage. It took a team of developers to build the planning system. It is common in a software project for team members to come to the project with their own approaches to development. When software is developed with a completely defined business need, it is endurable for developers to show their individuality. However, with the open-ended requirements of the planning project, individuality could not be permitted. The assumption that the planning system was to be matured over time and the limited department budget meant the planning system's development team needed to work smart. AstraZeneca needed some way of ensuring that the development team was constructing a system that operated consistently and could be easily modified. Also, they needed to keep the development costs within the limited budget. The expected number of releases the planning system was to have required a systematic approach to deploying it into the integration, testing, and production platforms. The team needed a standard operating procedure (SOP) for software development that was tailored for the project. This SOP needed to be engrained in every developer on the team. In short, they needed a design pattern that addressed the way humans built software, a Human Design Pattern (HDP).

Solution

To deliver the Human Design Pattern (HDP) that would ensure the development team delivered consistency, flexibility, and cost efficiency, two events needed to happen. First, a set of tools and rules to support the development efforts of the planning project needed to be constructed. Second, the development team needed to be engrained with the Standard Operating Procedure (SOP) of using the tools and following the rules.

In constructing the tools and rules needed by the team, the key was to separate the business logic from the technical logic used to implement the solution. The goal was to remove any technical logic from the team members' responsibilities, so the only code they needed to understand was the business logic. This fit perfectly with Marketing's need to mature the system with further releases. In the event of an enhancement, the only parts of the system that needed to be changed were the business rules. To accomplish this, a set of tools, code classes, and script code libraries were developed. Some of the technical challenge areas that were supported included:

1. Specialized database connectivity, querying and commanding
2. Directory integrated system security and administration
3. NDC level product administration
4. System navigation and menu display
5. Custom MS Word style entry
6. Custom MS Excel style entry
7. Client entry screen operation
8. Client entry screen layout
9. Source-code structure and operation
10. Reporting tools and report delivery
11. Scenario based planning
12. Context sensitive glossary and user help
13. User problem reporting
14. Global system access and usage
15. Abstraction and immunity from technical layer changes
16. System usage and load metrics
17. Plan file attachment and document sharing
18. Common functions and utilities
19. Common run-time attributes and constants

The implementation of the tools and libraries was guided by a set of rules the team followed. Some of the areas the rules addresses included:

1. Requirements and specification formation
2. System deployment sequence
3. Source version control
4. Coding structure and source organization

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5. Deployed system organization
6. Mandatory library usage
7. Subsystem Testing

It is important to understand that most class and code libraries that are designed without a guiding company need are never used. The key to the planning team's standard tools and components being used was that the tools were designed to work the way AstraZeneca worked. This fact was responsible for the successful engraining of the SOP in the development team. During the introduction of the tools and rules, created by SC Carbone, Inc., some of the team scoffed. However after seeing them in use, the team agreed that it was a superior approach to system development. In fact, many team members who left the project continued to use the HDP on their other projects within AstraZeneca.

Benefits

The Human Design Pattern implemented at AstraZeneca offered a number of real benefits. The most obvious to the developers, was the reduction in the amount of code they needed to write to complete their work products. An average example of such a reduction is the strategic plan report.

The strategic plan report initially had over 3,200 lines of code. After following the HDP, the code was reduced to 810 lines of code. In the process, solely by replacing code with calls to the SOP tools and utilities, all known faults were eliminated. Beyond that, the functionality was increased by introducing 40% more reporting points. The end result was that the new strategic plan report was 75% smaller, contained 40% more functionality, and was fault free.

The AstraZeneca planning team found that using an HDP directly impacted the workload the team could take on. Without needing to deal with the technical issues that plagued normal projects, the team was able to focus on the business problem. The efficacy of their work products increased. An important benefit of focusing on the business problem was that they were able to identify problems in the business rules earlier, so issues could be resolved quickly with less of an impact to the project. Also, they found they could deliver work products over 75% faster than with their typical approaches. This speed advantage could be used in the form of new project capacity or in cost and time reductions with the original project scope. While in development, AstraZeneca chose to add more functionality than they had planned. To quote Jennifer Rollins, Senior Developer for AstraZeneca, referring to the HDP Sergio Carbone, President of SC Carbone, developed at AstraZeneca, "Sergio Carbone enabled us to accomplish much more than we thought we could." The planning team found that since

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they only focused on the business solution, they were able to estimate accurately and complete work products consistently. In fact, in the twenty-four months that the planning project was being developed and enhanced, the ten member planning team never missed any deadlines or overspent the budget.

Long-term support represents a significant portion of a software products total cost. HDP improved the ability to support the planning suite. The reduced system size and consistency proved to be a repeating advantage of using an HDP. Team members had the advantage when it came to determining where to start looking for issues or planning the next enhancement. Since all of the subsystems were developed the same way, team members knew how all the modules should work, where to find the components, how they should develop, and how to deploy the system. Two additional benefits were that training new team members was simplified and support turnover was greatly improved. Today, AstraZeneca is able to support the needs of the planning suite, consisting of over fifteen subsystems and servicing nine marketing companies, with a single software developer.

Conclusion

To systems development organizations, Human Design Patterns translate to speed, reliability, consistency, and accuracy. The benefits of improved project capacity, lower resource support ratios, and estimation accuracy deliver improved dollarized value on every Information Technology effort. The value of HDP to business is the value of stretching their technology development budget or freeing up their technology support budget. The proof is in how the client community feels about the value of the service they received for their budget. To quote Jennifer Klein, Business Planning Director and planning project sponsor, in a May 2004 interview conducted by SC Carbone, Inc., "Certainly, the ability for the [development] team to react and meet the evolving needs of the brand teams was terrific." Klein went on to say, "I was very pleased that there were no problems reported, and the brand team's questions were about strategic planning not problems with the system." As for the big question of how would Human Design Patterns affect your organization? The answer is, how would your organization react to saving 35, 50, or like AstraZeneca, 75 percent of their information technology budget?