Renovating a Human Resource (HR) System

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# Renovating a Human Resource System

Riordan Manufacturing produces custom plastics in their four factory locations, across America and one in China. Each location has their own human resource system, operating their own rules and policies. To help reduce cost and overhead, the senior leadership team would like to consolidate these four system onto one central Human Resource System (HRS).

Before selecting the new HRS, Riordan will need to create a plan to assess the “must haves” and “nice to haves” requirements. From those requirements a design will be created and a feasibility study performed. After a design has been signed off, an implementation plan needs to be formed.

# Section I: Plan for Analysis

The first step to selecting the new HRS is to assess the requirements. To do this input needs to be collected from all involved parties. Next the input needs to be prioritized based on the value-add to the organization.

## Who Needs This System

A HRS will need to serve different operations to variety of customers, such as: leadership teams, employees in the human resource department, and also individual contributors. The overlap of these groups will encompass all members of the business.

## Collecting Input from Involved Parties

Now that the involved parties has been identified a plan to collect feedback is needed. There are several options available to the analysis, including: 1-on-1 interviewing, surveys, and Joint Application Design (JAD).

1-on-1. Using 1-on-1 interviewing enables the analyst to focus very deeply on a specific user story, from the person’s perspective (Gerson & Gerson, 2012). Due to time and resource constraints it would not be possible to interview all members of the company, however it would be possible to interview key members of each department or division.

Since the business is spread across America and in China, it would be cheaper to have one representative from each branch perform the interviews. Later the feedback could be merged from the four locations into a central list.

Surveys. On the other end of the spectrum is broadcasted surveys and multiple choice questionnaires. These can easily be sent out in email and only take a few minutes from each employee.

The problem with surveys is that this cheap option has a very large total cost of ownership. If there are 10,000 employees and it takes 5 minutes per employee; that is over one man month (34.7 days) worth of labor. Another issue is the survey will be limited to multiple choice which can constraint the ability to gain new information.

JAD. Between these two extremes is Joint Application Development (JAD). When using JAD, the analyst will schedule meetings and invite representatives from each of the involved groups (Valacich, 2012). These representatives can then voice their – wants, needs, and concerns – while receiving validation from their counter parts.

## Prioritizing the Feedback

“All [feedback] is equal, some [feedback] is just more equal (Orwell, 1945).” After collecting the feedback from all involved parties, a sorted list needs to be created ranging from most to least important. Typically the most important items are also the ones that provide the value to the business (Pace & Huppert, 1998).

The potential value is calculated by taking a sum of estimated savings against all impacted tangible and intangible things; then subtracting any additional costs (Dennis, Wixom, & Roth, 2012). An example of each respectively is reducing the amount of packaging needed or improve customer satisfaction. The value of something similar to customer satisfaction can be quantified through decreased support calls (Dennis, Wixom, & Roth, 2012).

## Determining Project Scope

“The Standish Group established that only 17% of IT projects are successes, 52% go over budget, and the remaining 30% fail (Ditmore, 2013).” These over budget and failed projects can often be attributed to poor scoping of the problem. If an organization bites off more than it can chew, there will not be sufficient resources present when needed.

To determine the possible scope it is useful to have a theme, budget, and timeline for the deliverable. For this project the senior leadership team has requested a new consistent web portal (theme) that is deployed within 6 months (timeline), costing no more than $50,000 plus a dedicated 5 person team (budget).

## Risks to Project Scope

Feature Creep. One common risk to a project scope is feature creep, which is the addition or expansion of features during the implementation phase. Since this work was expected during the analysis and design phase it will not be accounted for in the budget.

To reduce the occurrence of feature creep it is useful to identify what are the: must haves, should haves, and nice to have – items of the release. For instance the HRS “must have” a web portal, but it would only be “nice to have” support Spanish if there is time. Items marked as nice to have are only added after all the must haves are completed.

Regression Risk. A second risk to project scope is regression risk. For instance changing a web service to use a new provider might reduce cost, and be cheap to implement. However if there are numerous components that reply on the behavior of the service, they could break. After the breaks occur additional work can become promoted from “nice to have” to “must have,” introducing feature creep.

## What are Feasibility Studies?

“A feasibility study is done by an organization in order to determine if a particular action makes sense from an economic and operational standpoint (Gale, 2007, p. 489).” This is done through two phases; first determining the probability of success, second estimating the required costs and benefits of the work.

## Areas of Feasibility Risk

There are many factors which can decrease the odds of a project being possible such as political resistance, use of new technology, or being under budgeted.

Political Resistance**.** Typically a new system will be wanted by 20%, hated by another 20% and neutrally viewed by the remainder (Dennis, Wixom, & Roth, 2012). Because of this even split, it is important that the 20% against the system does not have more authority. If they have more controlling say they this group can limit the growth potential or even get the project canceled.

To mitigate this challenge conversations need to take place with the authoritative members of the group and ensure their requirements are noted and concerns addressed. Another option is to convince more of the neutral people to support the system.

New Technology. If the project is going to use new technologies, implementation costs will be more expensive due to added research time and increased chances of design change requests (DCR) (Dennis, Wixom, & Roth, 2012).

To mitigate this risk Riordan can consider outsourcing sections of the project to experienced developers at consultant firms. The external partner can then implement the design on an agreed upon price and date, which can then be budgeted and planned.

Under Budgeted. If an insufficient amount of resources are available to the project, the team will have a difficult time making deadlines. For instance if the HRS needs 10 servers and 100 engineers to complete within 6 months, it is not likely that the same work could be completed by a dozen engineers.

If a system is going to be over budget, the deliverable timeline will need to be increased. Alternatively features can be cut, more engineers hired, or quality decreased.

# Section II: Design of the System

After the analysis of the system’s requirements has been completed, it is then time to move into the design phase of the system. During this period the high level requirements need to be converted into architectural and process decisions.

## User Stories of the System

Designing the process flow of a system can be simplified by describing all required scenarios in terms of user stories. A user story is a workflow which starts with an event or trigger, follows a series of activities, and ends by completing a requirement of the system.

New hire. A new employee joins the company. This requires a HR representative to collect basic information such as Name, date of birth, and tax identification numbers. Next the new hire is required to digitally sign contracts. After signing the contracts, the person will be assigned to a manager.

Benefit Enrollment.An employee would like to sign up for benefits received by them or their family members. The person would then go to a web portal and check if they are allowed to make changes. If they are not then a descriptive error message will be shown, and the process ends. Otherwise options will be presented and the changes submitted for approval.

Annual Review.A manager needs to submit an annual review of an employee. They connect to a web interface and specify which direct will be reviewed. The manager then writes a report and then scores the employee and their current career trajectory.

Termination. At some point the employee will stop working for the company. A member of the HR team will need to collect a post interview and submit it to a central system for storage.

## Proposed Architecture

 Describe the logical DFD

 Figure 1: Level 0 model of the System

 Figure 2: Level 1 model of the System

## Security Controls

There are several risks to a HRS system that need to be mitigated, otherwise confidential information could become exposed or altered. To protect against these risks the data flow diagrams need to be inspected, specifically focusing on the trust boundaries (Spears & Parrish, 2013).

At the trust boundaries assurances need to be made that the data will flow across an encrypted channel. The level of encryption needs to be in compliant with any applicable government rules or regulations. These will vary from state to state and country to country.

As the data flows into the next component it needs to be authenticated, its intended usage authorized, and the request audited. The first check is against the identity; this is done as it is not possible to protect a resource unless it is known who is attempting to access it. Once the requestor has been identified through some system, the intended use need to be permitted or declined. Finally the action needs to be recorded for either the success or failure case.

# Section III: Implementation of the System

After the design phase has completed it is then time to begin the implementation phase of the HRS system. Typically this is the longest phase, often taking more than 60% of the entire development time (Dennis, Wixom, & Roth, 2012).

In this period source code is authored, the resulting executables tested, documentation is written for the installation and training, and a long term support plan is needed.

## Describe Implementation

There are several models for implementing the HRS system, some of the key ones include: Agile Design, traditional waterfall, and Scrum,

Agile Design. To build this project under a completely agile design, the six month time frame would be broken into various lengthen sprints. At the start of each sprint a collection of deliverables needed by the end of the sprint would be selected and distributed to engineers. Upon completing a sprint; a functional system needs to exist, all unit tests need to be written and passing, and any additional qualities completed (Valacich, 2012).

Through the use of agile development practices, the implementation team is able to get feedback more quickly and provide course corrections. However if the requirements list had been well flushed out this is less of an issue.

Waterfall. <WHAT IS WATERFALL>

Scrum. <WHAT IS SCRUM REFERANCE>

When a group chooses Scrum, they start by creating a product backlog that includes all items needed to release the HRS. Next an iteration is defined and placed with both a start and end time. Items in the backlog are then sized and placed into the iteration until all time has been populated.

## Plan of action for each activity

• Coding

• Testing

• Installation

• Documentation

• Training

• Support

## Benefits of this plan

• Uses defined and repeatable process

• How this process benefits the overall system

# Conclusions

High quality systems do not happen by accident. They are built by first seeking requirements from all involved parties. Next these requirements are prioritized, sorted, and filtered. Once the requirements are finalized, a logical design can be created to plan needed components and these components will interact.

An effective approach to start this process is create user stories and process workflows. From this information data flow diagrams can be built and planned. These diagrams can be used to kick off the implementation phase, which needs requires planning and organization.

# Bibliography

Dennis, A., Wixom, B., & Roth, R. (2012). *System Analysis and Design, Fifth Edition.* John Wiley & Sons Inc.

Ditmore, J. (2013, October 29). *Why Do Bit IT Projects Fail So Often*. Retrieved from Information Week: http://www.informationweek.com/global-cio/interviews/why-do-big-it-projects-fail-so-often/240163186

Gale. (2007). *Encyclopedia of Small Business Vol 1. 3rd Edition.* Detroit: Cengage Learning.

Gerson, S., & Gerson, S. (2012). *Technical Communication. Process and Product, Seventh Edition.* Pearson Education.

Orwell, G. (1945). *Animal Farm.* Signet Classics.

Pace, C., & Huppert, M. (1998). Finanical feasibility in implementing process change. *AACE International Transactions*, IT37-IT44.

Spears, J., & Parrish, J. (2013). IS Security Requirements Identification from Conceptual Models. *Journal of Information Systems Education*, 17-29.

Valacich, J. (2012). *Essentials of Systems Analysis and Design, 5e.* Pearson Education, Inc.