ITRM - Assignment





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# Introduction

In this assignment we will be comparing three cases (Tektronix, Inc.: Global ERP Implementation, Cisco Systems, Inc.: Implementing ERP & Harley Davidson Motor Company: Enterprise Software Selection) for similarities and differences with respect to 4A Framework for Risk , Risk Infrastructure, Risk governance & Risk Awareness.

Each risk aspect will be analyzed for similarities and differences for the cases in tabular format wherever applicable and free flowing content format will be used for high level definitions of risk framework and core disciplines.

# 4A Framework

It is true that we cannot eliminate all the risks in this dynamic & complex business environment; therefore we need to manage it well from different angles. The 4A Framework of Availability, Access, Accuracy & Agility risk dimensions provide a common language that organizations and management can use to manage IT risks without associating the technical complexities.

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| Dimensions of  4A Framework | Tektronix case | Cisco case | Harley Davidson case |
| Availability | Legacy systems lead to ERP implementation.  - Tektronix had complex Legacy systems of 460 applications.  The major business applications depended on IT were Financials and Order Management / Account Receivable (OMAR).  Tektronix had modified the missing software functionalities to adapt to business requirement.  Business Processes  Tektronix had implemented ERP primarily for Manufacturing and Financials.  Implementation Strategy Tektronix followed plain vanilla approach of Software implementation. | Legacy systems lead to ERP implementation.  - Cisco Legacy systems had frequent system outage.  They had a frequent system outage problem which affected their growth. On an average the system went down once a day.  Cisco had even experienced system outage of two days.  Depended applications on IT are Manufacturing, Order entry systems and Finance.  Business Processes  Cisco had implemented ERP primarily for Manufacturing and Financials.  Implementation Strategy  Cisco followed plain vanilla approach of Software implementation. | Harley Davidson implemented the enterprise software primarily for Supply Management Strategy.  Harley Davidson implementation enabled to reduce the cost of System Maintenance and obsolescence. |
| Access | Having a 460 legacy system lead to lack of accurate information on performance, customer account and credit on global basis. | Cisco did not have centralized information. | Harley Davidson did not have centralized information.  IT enabled enterprise view of supply base activity and performance. |
| Accuracy | Information Availability  Application could not calculate an invoice total for customer at order creation.  There was no single financial and accounting receivable system worldwide.  Standardize charts-of-account & eliminated the most of the complex transfer pricing that were in place. This allowed the managers to see up to date information about financial status instead of waiting for end-of-period reports.  Project implementation helped personnel work. They started spending 10% of their time getting data instead of 90% earlier. Hence the information is timelier, it is better and they got it faster. | There were huge numbers of business processes that the software could not support. | Harley Davidson did not have the proper system to handle their suppliers.  Supplier relationship was considered to be a strategic opportunity to speed time to market, reduce costs, and improve the product quality. |
| Agility | CFO Neun had got unlimited authority from CEO on the implementation resulted in accelerating the implementing process.  Wave concept enabled them to upgrade the software whenever required. This wave concept yielded frequent successes.  Introduction of multilingual engine allowed the system to work in a single language and eliminated the need for different systems for each country. | The software did not have the ability to handle the transaction volume required for Cisco environment.  The reliability, scalability and modifiability of the old applications did not support Cisco’s expected growth. | Technology tools helped reducing the complexity through common tools and systems. |

# Risk Infrastructure

Organizations always carry great amount of risk with the underlying IT infrastructure which provides the basic foundation for application integration and support. This base of infrastructure, application & supporting personnel’s should be well structured and well managed with complexity to the extent which is must. Risk management can be improved in all dimensions by removing unknown complexities in IT Infrastructure. An immediate fix for Foundation corrects current flaws in the system and provides time for long term improvements. IT Foundation simplification reduces cost over long term and makes it easy to manage 4A dimensions of IT risks in organization along with other two core disciplines of IT Risk.

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| Dimension of Risk  Infrastructure | Tektronix case | Cisco case | Harley Davidson case |
| Risk - Legacy Infrastructure/Foundation | Management and information systems lacked integration and suffered from decades of uncoordinated evolution.  One of the major issues was its 1970s-vintage information architecture. Despite occupying a strong and stable position in its markets, the company was hampered by a fifty-year legacy that limited its flexibility and growth opportunities.  It was not possible to divest any portions of the business due to the inflexibility of the big mainframe system and very difficult to even identify the data that could be spun off.  Tektronix did not have flexibility with its Foundations. Fixing Tektronix's IT was crucial to the long-term success of the company.  It was not possible for the company to ship "up to the minute" or on a Saturday.    Patchwork for legacy systems created the need for sales orders to be entered in multiple places. This slowed processing and customer service and introduced the opportunity for order errors to creep into the system.  Expediting an order required extensive manual coordination.  Tektronix required a complete rework of the global hardware and communications infrastructure. Move from IBM mainframes to UNIX machines.  The communications infrastructure also needed rework as each manufacturer had its own standard communications protocol. So, Tektronix decided to standardize on Internet Protocol (IP) avoiding installation of multiple lines and several protocol converters around its global network. | Initial IT strategy - Let division take care of their infrastructure. Overall architecture is shared, enabling sharing of data.  Cisco was running a UNIX-based software package to support its core transaction processing. The functional areas supported by the package included financial, manufacturing, and order entry systems. The UNIX based package didn't provide the degree of redundancy, reliability, and maintainability needed.  Further changes to the application were not possible anymore as it had become too much spaghetti, too customized.  Scalability Issue - Would the software developed for a $300 million company fit the use of a $1 billion company?  Systems outages became routine. Product shortcomings exacerbated the difficulties of recovering from outages.  In January of 1994, Cisco's legacy environment failed so dramatically that the shortcomings of the existing legacy systems could no longer be ignored.  This Legacy system failure corrupted Cisco's central database and the company had to shut down for two days.  This incident triggered Cisco to replace its Legacy system and related infrastructure. | There was a high degree of dissatisfaction with the existing systems, as well as a mismatch with the Supply Management Strategy (SMS), which depended on people having the skills, resources, and time to focus on building supplier relationships.  With current infrastructure and improper Supply Management Strategy (SMS), Harley­ Davidson did not have the right product, at the right time, with the best quality, for the lowest possible cost.  Harley Davidson had at least three different central processes, which resulted lack of integration in their infrastructure.  Harley Davidson encouraged site independence, which resulted in different methods for handling procurement, including the acquisition and/ or development of different information systems for Purchasing. |
| Application Infrastructure | The company had many different application systems and technologies around the world. Gary Allen, IT Director - Finance & HR Systems, called it "a spaghetti factory."  There were over 460 legacy systems just in US and none of the systems was standardized globally. | The reliability, the scalability, and the modifiability of current applications would not support Cisco's anticipated future growth. | Each Original Equipment (OE) site had different systems to meet specific needs for local sites. For example, the OE system at Harley-Davidson's York, Pennsylvania site was different from the OE system in Kansas City, and both differed from the OE systems at Powertrain sites. |
| Data Management | No visibility of inventory once products were shipped from Beaverton to any of our sites around the world.  The company lacked accurate information on performance.  Did not have the capacity to effectively manage customer accounts and credit on a global basis.  Could not calculate an invoice total for a customer at order creation.  It was extremely difficult to know which products and divisions were profitable and which were not. Information clarity was not there for decision making.  Shutting down all mainframe processing and consolidated seven data centers to one. | Data management issues not observed in the case and it was more of responding to an aging system incapable of handling growth. | Harley­ Davidson did not have the right information, at the right time, with the best quality parts, for the lowest possible cost in their plant sites.  Consolidated data was not available for decision making.  Enterprise view of supply base activity and performance was not available.  Enterprise aggregation of demand to leverage suppliers and contracts (across sites and functions) was not available. |
| Risk Solution – Simplifying & Standardizing Infrastructure/Foundation | Replace Legacy IT Infrastructure with a common template Infrastructure around the world and the solution was labeled as 'Frankfurt is Orlando.'  Decision to implement ERP to standardize and keeping things simple around the world, with better information visibility around the world the costs would go down automatically.  Three following core principles for new Infrastructure.  - Separability of the businesses - Separate fulfillment processes with common infrastructure.  - Leveraging shared services - Divisions should be comparable to each other.  - Staying as "plain vanilla" as possible - Standardized processes and software maintenance and upgrades would be easier. | Cisco decided to implement ERP to resolve legacy issues and to do business in more standardized manner which is in sync with their growth rate.  ERP solution for integrated replacement covering all business units such as Order Entry, Finance, and Manufacturing.  Cisco went for a quick implementation solution, so it was 'Big Bang' - all at once implementation. Not much of customizations to standard ERP to facilitate faster implementation.  Cisco made the ERP solution companywide priority for faster implementation results. | Harley Davidson decided to implement ERP to increase strategic procurement activities.  ERP will reduce foundation complexity through common tools and systems and system maintenance and obsolescence costs also will be reduced automatically.  ERP infrastructure will bring in Data consolidation for decision making and Enterprise view of supply base activity and performance.  New infrastructure will provide reduced procurement cycle time and reduced manual activity  Lower material costs due to decreased labor and supply chain costs.  Decreased inventory costs due to more predictable demand and better visibility in the supply chain.  Lower carrying costs due to fewer inventories in Harley-Davidson plants. |

# IT Risk Governance

IT Risk Governance System is all about connecting the people, processes, policies, information & technologies into a single dynamic framework. All this is done to enable and encourage desirable behavior in the use of IT. The Goal of IT Risk governance is to make key IT decisions in the organization which are right legally and otherwise. It puts knowledge at different levels of the organization to work where it is most effective. It also allows managers to make decisions based on a view of all risks at their level of the organization and provides a ready-made path to step-down disputes. Finally it increases awareness of policy and standards at every level of the organization

## Organizational Structure for IT Risk Governance Process

* Executive Sponsor
* Risk Policy Council
* Implementation Council
* IT Risk Management Team
* Local Managers and Experts

## Tasks under various roles

Executive Sponsor

1. Provides top-down vision and support for IT risk management policy.
2. Sets the tone for risk management.

Risk Policy Council

1. Sets and reviews policy.
2. Prioritizes risks.
3. Approves funding for programs and initiatives to reduce risk.
4. Reviews exceptions those are unresolved.

Implementation Council

1. Implement risk management policy via business and technical standards and procedures.
2. Ensure that local operational managers and experts conduct periodic risk reviews in consistent ways.
3. Prioritizes the assessment results.

IT Risk Management Team

1. Creates tools and templates for use at all levels.
2. Assist local managers and experts to identify and assess risks.
3. Reviews upcoming projects, operating procedures for compliance to risk management policies and standards.
4. Produce detailed analysis and reports.

Local Managers and Experts

1. Identify risks.
2. Prioritize risks according to policy established by the risk councils and ITRM team.
3. Manage low priority risks and report higher-priority risks to the implementation council.

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| Dimensions of IT Risk Governance | Tektronix Case | Cisco Case | Harley Davidson Case |
| Executive Sponsor | Neun envisioned that the current legacy system could not be used in the long run and supported the cause of ERP implementation | Pete Solvik CIO acted as the Sponsor wanted to get rid of the too much customized software package along with Randy Pond. But there was initial intent not to use ERP. The 1994 failure of the legacy system proved to be a vital point for the sponsor to take action  Morgridge made ERP implementation a priority item in his list | Garry Berryman acted like the Executive Sponsor having a vision |
| Risk Policy Council | Language specific roll out in a phased manner with priority based on the geographical location  The heads of the three departments (CPID, VND, MBD) were prioritizing the Risk during implementation and Roll out of the solution | ERP implementation was one of the top goal of the company (one of the 7).  Executive Steering committee was formed to review the ERP implementation and linked risks | Supplier Information Link Team (SiL’K) identified Risks  Steering committee comprising of Garry, Dave, Tom, Pat and Corry helped in prioritizing risks involved with focusing on single Vendor |
| Implementation Council | The division members had data related to the shipment and errors with the old legacy system. This gave data to the management about the improvement with the ERP implementation (example day shipments rose to 75% after implementation) | Product area teams were formed for the implementation including members from Oracle and KPMG | More or less part of the SiL’K |
| IT Risk Mgmt. Team | Managers emphasized the need for testing with the actual load in the MBD department while implementing OMAR at MBD using test conversions and system tests. | Avoiding modification to the Oracle ERP was the aim of the team, CRP (Conference Room Pilots) was completed to ensure that the software would really work with the Cisco Business Process | Stake holder survey was conducted  Mapping processes efficiently and effectively with available tools. |
| Local Managers and Expert | Help from Consultants was not providing to be effective, the mangers from CPID found this to be a potential risk  Key players in each functional and geographical areas acted as negotiators to eliminate the need for business change there by reducing risk | Local managers provided required information to mgmt. regarding the risks involved with the costs and the timelines of the project. | Members of the Purchasing Department including Dave, Glen, Rick and Kerry |

# Risk Aware culture

A risk aware culture depicts how an organization prepares and tackles the risks. In a risk aware culture top to bottom of the organization is aware of the risks and its implications. The top most officials walk the path of managing risk. The junior most employee of the organization is aware of the risks and knows how to report a risk.

In a risk aware culture everyone is open to talk about risks and able to resolve them. In the below table the three companies Tektronix, Cisco and Harley Davidson have been evaluated on several aspects of risk aware culture.

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| Dimension of Risk Aware Culture | Tektronix Case | Cisco Case | Harley Case |
| Risk initiation | Tektronix key officials identified the risks associated with agility and started to work upon it.  It was started by their CFO Carl Neun aided by his CIO Bob Vance. Carl Neun was completely backed by CEO in this initiative. | Cisco's risk was identified by CIO Pete Solvik which was backed up higher officials. But the risk was more identified in a reactive manner after the outage of systems took place | The risks were identified by Garry Berryman Vice President of Materials management to drive the supply management strategy (SMS) |
| Implementation and Monitoring team | A team was formed for the project monitoring and implementation headed by Carl Neun | CISCO formed a strong team who would implement the ERP solution and would be monitored by the steering committee | A project team was formed called as Supplier information link (SiL'K) by recruiting from each of the procurement divisions .Details are not provided in the case for the implementation team |
| Change Management | Change management was given emphasize. A change control team was formed |  | Change management was given emphasize. Vendors who had change management and training in their ERP package were given weightage. |
| Pace of implementation | Implementation was done in waves such that learnings of previous waves could be accommodate to the forthcoming ones | Cisco did the ERP implementation in its business units very quickly. It had to follow a very stringent deadline | Harley Davidson did the implementation after considering all the aspects of the business units |
| Participative implementation | Project team involved people from all the functional and geographical area to aid the implementation. | Cisco had a moderate mechanistic culture which showed how the implementation of the project was done | Harley Davidson had a very organic and participative culture. As the ERP implementation involved hearing all the points and concerns from the business units. It shows they had the type of culture which is the pre-requisite of having a strong Risk aware culture. |

# Conclusion

From the above analysis we can clearly observe that 4A Framework can be applied to assess the risk with respect to Availability, Access, Accuracy & Agility risk dimensions. This helps greatly to make better decisions and to clarify tradeoffs and then allows business & IT people do what they do best. In today’s world IT Risk is business risk and this framework provides analysis of IT risks without associating complexities of technologies and this analysis is easily understood by business for decision making.  
Then, effective IT Risk management can be accomplished by using three core disciplines shown above i.e. first well architected, well managed & simple IT foundation is inherently less risky than complex ones. Second, a mature risk governance process includes policies & processes to identify & assess risks and prevent risky behaviors. Third, risk awareness helps everyone in the organization to understands threats and mitigate risks. Organizations can be world class in any one of the core disciplines shown above and the rest of the disciplines align over a period of time.

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