Edward Prusiecki

IT Portfolio Management

Information technology (IT) has become a required core competency for almost all businesses to be successful. Businesses that successfully implement IT systems create value, drive growth, and strengthen competitive advantages. With many businesses investing anywhere from 1.5%-7% of revenue into IT systems, it is imperative that a clear IT Portfolio Management approach is followed to ensure their IT investments succeed. In today's ultra-competitive environment, an effective IT system might be the key factor that makes or breaks a company's performance against their competition. Planning and executing an effective management system and understanding regulations are fundamentals to successful IT Portfolio Management (IPM). The eight key stages of building a portfolio management system provides a framework for developing an IPM despite the fluid and dynamic balancing act of juggling with the uncertainties and complexities of IT and changing external business conditions. IPM delineates the daily operations of IT investments and sufficient knowledge of the history, main aspects, and the process to build IPM is vital to the successful realization of value from IPM.

History

The infant years of IT was in the 1940s. During the following three decades IT management was very straightforward. The equipment was extremely expensive and hardware was customized per the needs of each company. Due to the heterogeneous nature of the costly and highly customized equipment and limited capabilities the

management of IT was relatively simple and straightforward. The main function for computers during the few decades after World War II was primarily to conduct large amounts of calculations. For example, computers were used to crunch numbers and process enormous amounts of data, such as the US census or bookkeeping for businesses. The early computers basically did nothing more than replace the bean counters that did the number processing behind desks. Hence, early IT was referred to as "data processing". As hardware and advances in processors were realized, computers were used for more than purely data processing. Instead of simply holding data and records, computers could now create reports and process those records providing valuable information to decision makers in organizations. MIS and the CIO were subsequently created. However, at this time, the CIO was not a high level executive, as he is today. He was more of an advisor to the CFO rather than someone with input to the formation of the company's strategy. The centralized nature of the IT organizational structure resulted in slow response to the quickly changing environment.

However, as software and hardware become more affordable, business units and divisions invested in IT independent of their corporate IT. It was quicker and less expensive to take the initiative and not have to go through the sluggish corporate IT process. To a certain degree, there was a feeding frenzy approach towards investing in IT throughout the latter half of the 1990s. As such, investments and IT management in many companies was very decentralized and unorganized. Since the business units and divisions typically did not run their IT systems through corporate IT, they did not follow approved corporate standards, especially in terms of interoperability. By the late 1990's many companies had very heterogeneous and decentralized IT systems throughout their

corporation. Many problems resulted because of how IT developed during this decade. Some companies that conducted an inspection of the IT assets in the late 1990s commonly found unnecessary redundant and duplicative systems. They found a good amount of waste and inefficiencies. However, a lot more companies started to take a closer look at their IT systems in the following years.

In 2000 the internet bubble popped and the economy slumped into a recession. With the good times over many companies took a very hard look at their pipeline of new IT innovations and discovered an unnecessarily large quantity of IT investments and many of those investments were misaligned with their strategy and not integrated with other IT systems in the company. Too many poor quality systems that didn't talk with each other in the company were largely discovered after the internet bubble popped. These were inefficiencies and waste from poor management of their IT portfolio. With a weak economy, companies placed additional pressure to minimize waste and eradicating inefficiencies. Regulations, such as Sarbanes-Oxley, were changing and adding to the complexity of IPM. One statistic that provides a snapshot of the inefficiency of this early version of unorganized IPM is that between 1999-2001 firms in North America spent more than $1 trillion on IT investments with $300 billion failing, going over budget, or finishing late. Another statistic is that projects for growth and new initiatives typically make up 25% of a firms total IT budget. With a 30% success rate, only $1 out of $14 spent results in new benefits of IT growth. It is clear that during the past couple decades IPM has gone through some growing pains.

The birth of the position of CIO, who typically now works directly for the CEO, in the last two decades is indicative of the importance of IT systems. Being a relatively

new position, the learning curve was higher than in other well established peer positions, such as CFO and COO. It is clear that the role of the CIO grew in importance and routinely changed in the last two decades and especially when companies realized the inefficiencies and waste they found in their IT systems after the internet bubble burst and the subsequent recession. Hence, IT management's role has expanded to include development of the corporate strategic plan to better integrate a more homogenous IT system into the company's business strategy. This was the natural progression of IPM as companies refocused efforts on better utilizing their IT systems without the waste, eliminating duplicative systems, and increasing the integration of the companies IT systems. Despite a recent study observing less than 20% of companies maintain an active IT portfolio, during the last decade many IT systems have developed into a higher quality, more centralized company wide system with little or no duplicative systems between varying business units or divisions.

Current IPM

There are many definitions and descriptions of IPM. It is a combination of people, processes, and information that is designed to deliver measurable business value while managing risk and costs. It provides processes to decode IT so everyone in the business can understand how it creates value and supports the mission of the business. It also provides daily protocol and framework to ensure IT investments are performing and operating per their design specifications. Of course, integration and communication between IT and the business is crucial to a successful IPM. These are all descriptions of

IPM, however, it is composed of primarily three main areas. The first area consists of standardized and clearly communicated frameworks and processes. This provides guidance on the plan to execute IPM. The second area consists of the tools to analyze costs, benefits, risk, and other data. The third area is the creation of a taxonomy and governance that provides the business with a clear picture of the policies, criteria, and guidelines for the execution and control mechanisms of IPM.

Another way to break down IPM is by looking at sub-portfolios. The three sub-portfolios are discovery, project, and asset. The discovery portfolio typically consists of long-term investments. Despite the risks and the nature of the non-quantifiable costs and benefits of the discovery portfolio, it is highly experimental and typically pursues long term innovation as its name implies. The project portfolio is made up of shorter term investments that takes inputs from both the discovery and asset portfolios, along with other strategic inputs, and focuses on projects in development. It partly functions as an inspection system to ensure the current projects are following the original goals and the company's strategic intent. The more effectively project portfolios are run, the higher the probability of project success. The asset portfolio is comprised of existing investments and operational baselines and is typically the largest of the sub-portfolios.

Effectively run project portfolios can be contributed to a larger force. A crucial part to ensuring the success of IPM is IT governance. The two main functions of IT governance consist of structure (policy development) and the process (policy compliance). The structure deals more with the guidelines for behavior and direction. The process deals more with enforcing the structure. A strong interdependent relationship resides between IPM and governance. IPM provides tools and a framework to support IT

governance while governance provides the criteria for evaluating IT investments. Also, IT governance basically ensures decisions are made quickly by the right people and the structure for making future decisions is delineated.

Building IPM

Effective IPM relies heavily on both objective and subjective building and maintenance processes. The variables that affect the evaluation of IT investments are highly intangible, qualitative, and nonnumeric. Simultaneously, hard quantitative objective metrics are utilized to measure the effectiveness and performance of IT portfolios. Hence, many say that building IT portfolios is a combination of both art and science.

The underlying factors driving the development of IPM are business strategies. These strategies range from developing new products, increasing productivity, cutting costs, and reducing defects. It is important that IT is aligned properly with the strategies before the building phases so they can better support their main mission. Also, the project managers for the IPM should fully understand the business strategy to ensure that the building of the portfolio is in alignment with the strategy. If the portfolio is designed and the decision makers don't have the strategy in mind, there is a higher risk of the portfolio being developed in its own way without regard to how it is supposed to create value for the business. This may result in the IPM being created for the sake of creating a portfolio. This is synonymous to a project team designing a new safe car for families; however, this safety focused strategy is not fully known by the decision makers of the project. Due to

this misalignment, the engineers end up building an engine more appropriate for a race car and an interior that would be better suited for a luxury car. Hence, it is commonly argued that successful IPM largely is resultant from a successful people process with strong communication.

Three more fundamentals of IPM are value, risk, and cost. These three staples must be fully understood by companies in order to ensure successful IPM. Value, simply put, is when benefits of a project exceed its cost. Net present value is one common method for companies to calculate value. Other benefits can be less quantifiable, such as improved customer satisfaction, higher morale, or enhanced operating culture. Obviously, the specifics and the definition of the value for each project will differ. They must also be as clearly delineated as possible and agreed upon by stakeholders and decision makers. It is also important that the portfolio team fully understands the big picture of what value the IT project is designed to create. The team needs to be on the same page. Using the previous example, they need to know that the value they are supposed to create is a safe comfortable automobile for families, not a luxury race car.

Risk, simply put, is the possible deviation from expected results. Risk can negatively impact projects resulting in lower quality results, changed scope, and higher costs. Thorough risk mitigation and due diligence has been correlated to a higher probability of success. In the same way, risk can be good and result in positive effects such as the project finishing early and allowing the commencement of e-commerce operations ahead of schedule resulting in a larger payoff. The statistics show that half of the global 2000 companies conduct risk analysis prior to commencing the IT project and only half of those continue to assess risk throughout the project. Hence, only 25%

conduct the necessary amount of risk analysis. Thorough risk analysis increases the probability of preventing the negative consequences of some risk and ultimately saving the project from possibly having the costs outweigh the benefits of the IT project.

Calculating costs accurately is key to keeping expenses in line. Poor prioritization, duplicative investments, or keeping IT projects alive that should be terminated create inefficiency and waste. Out-of-control costs can reduce or erase any value the IT project is designed to create and subsequently negatively effect the competitive advantage of a company. IT costs can be broken down into two parts, fixed and variable. Fixed costs tend to be with long term aspects of the IT project, such as hardware investments, maintenance, and long-term software licenses. Variable costs tend to be shorter in nature, less than three months, and fluctuate with changing volume or usage. During the building of IT portfolios, properly managing risk, value, and cost is key to successful IPM.

Building IT portfolios has eight general stages. The eight stages are game plan, planning, creating, assessing, balancing, communicating, governance and organization, and assessing execution. The first step of the eight stages, game plan, describes the strategic planning aspects of the IT portfolio. Some key goals for this stage include, but are not limited to, examining expectations, list migration decisions, and identify risk/reward boundaries. These goals must be realistic and executable within the expected budget, or else the IT portfolio will be structured to fail. This is also crucial, not only for ensuring the goals stay within the expected budget, but also so the IT operations group fully understands the business strategies stated in the game plan. The focus of the IT group, that doesn't fully understand the overall business strategy, will mainly concentrate

on providing maintenance and reducing cost while neglecting the main business function the IT project is designed to support. Going back to the auto example, the car engineers will do their best to make a car that functions well in a low cost environment, but if they don't understand that the business strategy for this car they are developing is to provide the customer with a comfortable safe family vehicle, they may engineer a great car, but it will end up failing because it did not succeed in the safe family car market. The game plan is a vital step because everyone involved in the IT portfolio team needs to be on the same page, especially with the big picture business strategy. In some companies, the culture believes that IT is a necessary evil and would rather outsource the functions. One major studio admitted that the IT personnel have never been on a live set. Hence, they are "hidden" in their IT silo without much exposure to the business. This is the importance of the game plan, to prevent the silo effect from negatively impacting the IT portfolio.

Another important part of the game plan are metrics. It is estimated that 80% of IT measurement programs fail because the IT project was too expensive or did not improve the business and create value. As in project management, the IT project should have routine status reports comparing the specified metrics stated in the goals to what has actually been accomplished and if the project is on budget or not. If these metrics are not laid out early in the process and not routinely checked throughout execution, it is very difficult to track the project's progress and probability for success. Also, if the routine status checks start indicating the project is facing headwinds or suffering from too much risk, then action can be taken to correct the problem or cancel the project. Without the

game plan step, the IT team basically dives into projects head first without much guidance or structure. The game plan sets the team up for further planning in stage two.

The second stage, planning, also has significant importance as the game plan stage in terms of ensuring the overall portfolio management initiative is set up for success with more well defined strategies and structure. The detailed specifics and critical activities are plan investment strategy, plan portfolio structure, and plan individual sub-portfolios.

Plan investment strategy establishes investment categories and determines the appropriate risk/reward balance. This determines what percentage of the budget is spent for growing the business, running the business, and transforming the business. Typically half or a little more than half of the budget is allocated to running the business and the remainder goes into growing and transforming the business.

Plan portfolio structure deals with defining portfolio requirements, views, characteristics, and the sub-portfolios. It is important to design flexibility into the plan portfolio structure phase such that it can be easily changed to meet the needs of the stakeholders and remains adaptable. What determines the success of this is ensuring there is enough structure to maintain relationships without creating unnecessary work.

Stage three, creating, is when the execution of the plan begins. This is where the portfolio is populated, expected risks are identified, portfolio metrics are improved, and portfolio views are built. Determining existing inventories and sources of portfolio information are key decisions. There is a lot of data collection in this section of stage three. Of course, a clear business case greatly assists with populating the portfolio with the relevant data. Another key part of stage three is articulating the probabilities of what

the expected returns will be and what types of risks will be faced. An agreed balance of risk/reward is also agreed on during the part of stage three.

Stage four is when the execution of the IT portfolio is assessed with the expected performance. Commonly 25% is waste that is identified and IT assets are observed to be utilized at half of their capacity. The actual status of the portfolio is commonly not aligned with where it was originally planned. Hence, the main activities of stage four is monitoring for triggering events, measuring the portfolio, and comparing those measurements against targets. At the end of this stage a report is created to summarize the results compared to the target and show any gaps and residual risks. Some gaps between the actual portfolio and the target goal portfolio most likely exist. Some examples could include too many projects are being supported by too few resources and cultural barriers are larger than originally estimated. The next stage further evaluates and fine tunes these gaps to bring the IT portfolio closer to the target.

Balancing is stage five and uses the gaps documented in the assessment report as the primary input. While fine-tuning the gaps, the trade-offs should be fully analyzed so that fine-tuning gaps won't be cost prohibitive and all alternatives can be assessed. At the end of balancing, the portfolio is modified based on the actions during the stage and the elements of this adjusted portfolio is communicated to all key employees and members of the portfolio teams.

Communication is the sixth stage. Communication is extremely important through every stage, however, a specific stage needs to be structured in for a more focused communications approach. Key steps to this stage include identifying stakeholders and creating communication packages. The right audiences need to receive the correct

information. Certain stakeholders prefer to receive only certain types of data and may not be interested in other reports generated from the portfolio. The communication packages involve articulating the plans, goals, policies, and guidelines of IT to the stakeholders. Keeping the portfolio team informed of the attainment of goals and status of their work will help keep the team informed and morale high. Scorecards, performance indicators, detailed reports, newsletters, bulletin boards, and team meetings are all examples of communication packages that can be used to provide information, in a structured fashion, to the stakeholders and employees. Information exchange, via a structured communications system, is important for ensuring the team is on the same page throughout the IPM process.

Stage seven involves governance and organization. Similar to communication, governance is required throughout the entire IPM process. Recently, the growing importance of IT has resulted in some companies having the board of directors provide the charter and oversight for the IT portfolio. This governing body controls the principles, processes, and guidelines of the IT portfolio.

The final stage of building the IT portfolio is assessing execution. Simply put, this stage evaluates the results of the IT portfolio management process to confirm they meet the expectations defined during the game plan stage. Most importantly, did they satisfy the business case that was originally created? The main outputs of this process include an assessment of program execution, a comparison of performance assessments, and the compilation of an execution report.

Business example

It is clear that building the portfolio has various stages with clear guidelines and processes. I was exposed to one low level IT project that was completed in a tight silo with very little oversight. The business utilized a database of customers and their orders for the company's product. When new orders were received from customers, the sales force would update the system with the new sales data. Then the risk assessment team would process the data and then update the product-assembly-schedule with the new orders on a Microsoft excel file. This excel file contained the master commercial schedule telling the engineers when to build the product. The engineers who assembled the product did not have access to any of these systems. They received the schedule from a Microsoft excel file that the risk assessment team updated. It is clear that this business was operating in silos with redundant operations and too much reliance on excel.

The micro level project I was exposed to involved a new system that would make the assembly schedule on the excel file obsolete and provide the engineers with the assembly schedule via the new IT system. The current system of running the assembly schedule off of excel was extremely time consuming, inefficient, and subject to many errors and defects considering multiple humans were inputting the same data into multiple systems. The schedule was consistently changing requiring continuous updates to the schedule on the excel file. The risk assessment team was kept very busy updating this excel file. The micro level project I was exposed to was to replace excel with the new IT system so the engineers could log onto the IT system to see the most updated schedule without having to wait for an excel file to be sent to them via email. The new IT system would be updated by the risk assessment team.

Using the eight stages of building IT portfolios would have greatly assisted in ensuring this project was successful. However, it appears a solid eight stage system was not utilized. When I was exposed to this project, the phase in the life of this project was in the very last stage when it was released for use. It was clear the IT team, using the previous example in the earlier portion of this report, was building their automobile with a race car engine and a luxury interior while not fully understanding that the main mission was to create a safe family vehicle. They did a great job of creating the IT system, however, it did not make the excel file obsolete. It was not in alignment with the business strategy of not relying on excel files.

What it ended up doing was creating more work for the risk assessment team. The new IT system was not functional enough. There were too many complexities involved in updating the assembly schedule. It was actually faster for the risk assessment team to update the schedule on the excel file first, then go back to update the new IT system. Even after the new IT system was updated, it did not always match the schedule in the excel file, due to human error, and added confusion when people observed differences in both the excel and the IT system schedules. In the end, the new IT system did not take off, was neglected, and the excel file remained the primary tool for scheduling the assembly of the product and forwarding it to the engineers.

If the eight stages were utilized for this small IT project, the game plan would have clearly stated, “The goal of this project is to eliminate the use of the excel file with a more user friendly and simpler IT system.” The plan would have included specific metrics to address all of the complexities of updating the assembly schedule. There would have been more governance and the execution would have been closely monitored by the

stakeholders to ensure the project was on track to successfully replacing the excel file. The IT team would have fully understood the requirements of the risk assessment team. In the end, they should have released an IT system that added better value to the business by streamlining the scheduling process. Instead, they ended up with a redundant IT system that was less efficient than the excel file. It actually made the scheduling process more time consuming and added confusion when the two schedules did not match. In the end, the cost of this project outweighed the benefits.

The final exposure to this IT project involved a very high level plan listing the requirements needed to fully replace to excel file. It would require a more advanced IT system and probably a larger team. However, when I calculated the savings of this new more effective system, the business case fully supported the cost of starting a second project to upgrade the IT system to finally rid the use of the excel file. This is a great example of how IT portfolio management could have been better utilized to reduce waste, increase efficiencies, and prevent an IT project from costing more than the value it created.