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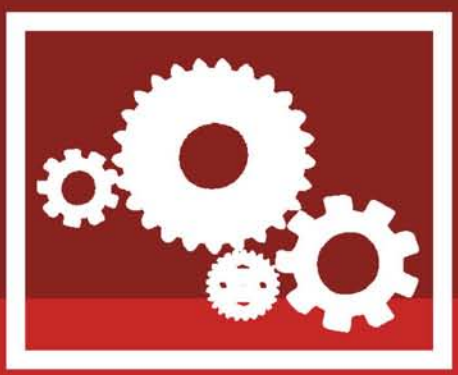

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The Application of New Information Economics Method on Distribution Company to improve the Efficiency and Effectiveness of Performance

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Abstract

PT SS is the main furniture material distribution company in East Java, Indonesia. PT SS has been applying an information technology system for its whole business processes, both on the lights on, infrastructure, services, management and the plan of the application system project. The objective of this research is to give a clear description of the benefits and impacts of the IS/IT investment to the management, both of the lights on or future projects. It is also intended to produce the right decision and better IS/IT investment alternatives. The researcher proposed to analyze the lights on and the project using New Information Economics (NIE). 4 out of 5 practices of NIE, which are demand/supply planning, innovation, prioritization and alignment, were proposed to be applied. The research resulted in the IS/IT investment strategy on the lights on, the fulfillment of the IS/IT requirements, the development of new innovation and priority of the project based on the company strategy intention. It concluded that the company was able to identify which light on was necessary to be enhanced, corrected or ignored. Moreover, it could be identified which project should be prioritized to allow the company to allocate the resources towards the lights on and appropriate project to support the strategy Intention of the company.

Index Terms: IS/IT, lights on, project, New Information Economics (NIE).

1. Introduction

PT SS, was established on March 1, 2010. It has been doing business on High Pressure Laminate (HPL) distribution. HPL is an upholstery material for furniture such as tables, chairs, cupboards etc. So far PT SS has been selling goods to some islands, such as Sumatra, Kalimantan, and Sulawesi. PT SS has been applying IS/ IT in its overall business Process as seen on the use of an integrated application system that links the whole divisions at the company. However, up to now the management of the company has not been able to identify

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whether the IS/IT invested on the lights on has contributed any benefits to the company. It is not yet clear whether the system has to be improved, developed or even eliminated as considered unfit with the company business strategy. The company does not know which projects need to be prioritized to support the company business strategy. Therefore PT SS requires an information on the benefits and impacts of the IS/IT investment. This information is needed to plan the use of IS/IT better.

The scope of this research is analyzing the lights on, either on the aspect of application, infrastructure, service, management as well as the plan of the future project to be developed further. This research was also using NIE method, resulting 7 out of 12 deliverables in the framework of Strategy-to-Bottom-Line value chain. Those deliverables are business strategic intention, assessed portfolio, strategic agenda, strategic IT plan, strategic IT requirements, projects, and annual project plan. The research was also using 4 out of 5 basic management practices of NIE. They are demand/supply planning, innovation, prioritization and alignment and portfolio management as 1 supporting practice of NIE.

The objectives of the research are to analyze the benefits and impacts of the lights on and the project plan to be developed further by the company; to give a clear description of the benefits and impacts of the lights on and project plan to the management staff using NIE method; to develop the company IT/IS plans and innovation; to make prioritization towards the project to be developed by the company. Meanwhile the benefits that can be gained are to improve the cost handling of the IS/IT and the system supporting the business strategy of the company; to produce the right decision on the use of the company IS/IT resources, both on the Lights On or projects; to link the business plans and the IS/IT; to make sure the IS/IT innovation can give impacts towards the IS/IT plan in doing business; to be able to identify which projects are more beneficial and have to be prioritized based on the company strategy intention.

The remainder of this paper is organized as follows. Literature review is presented in Section 2, whereas Section 3 provides the result and discussion. Finally, some conclusions are given in Section 4.

2. New Information Economics

New Information Economics (NIE) is a set of practices, coordinated based on integrated principles and activities. Those principles and activities are effectively linking business with IS/IT management process and able to link company business strategy with IS/IT activities and initiatives [1]. NIE is the development of Cost and Benefit Analysis (CBA) and Information Economics (IE) [2].

A few possibilities of company expenditure depending on the goal as described at Fig. 1. First, a reduced cost objective (IS/IT performance is the same as before, but the operational and maintenance cost is reduced). Second, a stable cost objective (IS/IT can increase business support. The impact is on the bottom line, but with the same current cost level or the cost is not increasing). Third, a sweet spot objective (IS/IT can reduce the cost and increase the performance as well with the impact on the bottom line).

NIE practices consist of two parts: 5 basic practices and 3 supporting practices [1]. Those five basic practices can be explained as follows (Fig. 2). In the demand/supply planning, there is a Translating business strategies into stages that gives clear direction to the IS/IT on what the expectation of the company are (Business Strategy Intention). The business manager and IS/IT should reach a deal on which direction the company will go and what the IS/IT can do to support.

Second, innovation. The change at the business strategy using the capability of the IS/IT can give responses towards the business requirements through innovation. The business changing intention often depends on what has been done by IS/IT. Third, prioritization. Analyzing the business impact from IS/IT initiatives, gives priority to the project and gives consent to the project highest value of resources. The company should spend some capital just for the project directly related to its strategic intention [3]. Alignment means there is appraising the business impact from the lights on activities. Every capital spent to maintain the

current system is the capital not spent for new development. Fifth. Performance Measurement. Measuring the IS/IT performance related to the business. Measuring the IS/IT performance in terms of operational and tactical is not difficult [4]. Meanwhile measuring the impact of IS/ IT in the business is very difficult.

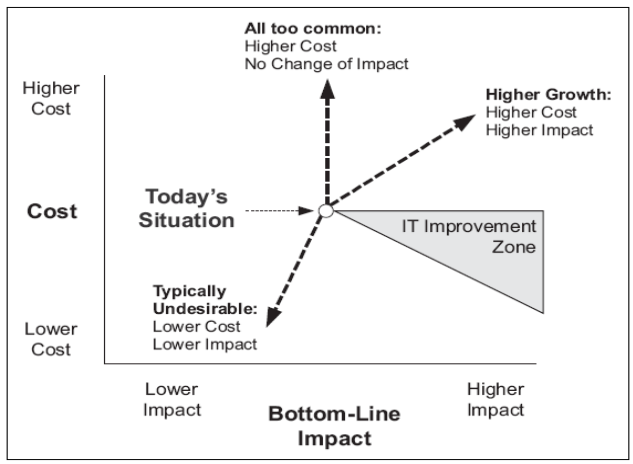

Fig. 1. Current Patterns of Company

Meanwhile the three NIE supporting practices are as follows. First, portfolio management. It gives consideration on the whole expenditures of IS/IT, provides holistic framework to set a priority and management investment decision. Second, IT impact management. It relates to culture management of a company and gives a framework to show what are important for the company. Third, Culture Management. It enables the company to connect with the existing culture at the company to eliminate any obstacles towards the changing management process.

The overall objective of NIE is to provide the ability to look into the 100% expenditure of IS/IT, and to develop a framework to plan using the budget (supporting the bottom line strategic value chain) as described in Fig. 2.

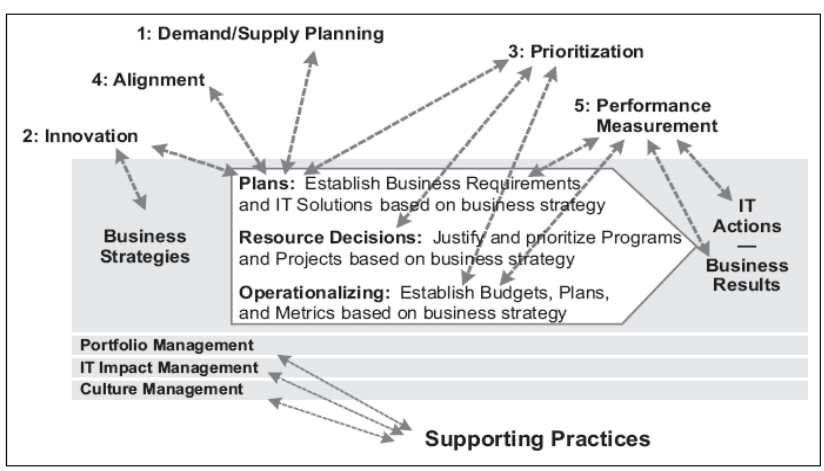

Fig. 2. NIE Practices

To gain the NIE results, the management has to answer the following questions as the guideline [1, 5]. First, Affordability Questions, that is: What can be gained by IS/IT investment? Is it possible to reduce the unnecessary IS/IT costs? And, is it possible to redesign the cost to support the requirements of the project? Second, Impact Question, such as: is the IS/IT investment right on the target? Is the company business strategy able to handle the IS/IT activities and results on the bottom line impact? Can we gain the bottom line impact from the operation of IS/IT? And is there any alignment between the investment at the strategic level and at IS/IT operational level?

The strategy-to-Bottom-Line Value Chain is a chain of management process linked and translated into the projects and operational budgets, and performance measurement to monitor the action and bottom line impact.

The explanation of the 12 elements at Fig. 3 is as follows:

1. Business Strategic Intention. It is used by 5 NIE practices and consists of the company mission and Strategic Intention.
2. Assessed Portfolio. It is a management portfolio, such as application, infrastructure, service, and management area portfolios, which are assessed to align the service, quality, technical and intensity of use.
3. Strategic IS/IT Agenda for the use of IS/IT. The agenda is the result of the strategic planning of IS/IT. The strategic agenda of IS/IT defines the business expectation towards IS/IT to meet the strategic intention.
4. Strategic IS/IT Plan. This plan is the result of the IS/IT strategic plan. It describes what the IS/IT has to do to meet the demand of the strategic agenda of IS/IT.
5. IT Strategic Requirements. It states the priority of the program and initiative. During the period of the strategic plan, the requirements of the IS/IT strategic agenda and business strategic intention will be met.
6. Project. It is a specific project of the program and initiative to be used to meet the IS/IT strategic requirements.
7. Annual Project Plan. This plan is a set of annual projects expected to be developed at the current fiscal year.
8. Annual Business Plan. This plan is a set of annual tactical and operational plans for business units. This plan is a foundation to develop an annual project plan and defines requirements of the business units from IS/IT.
9. Annual IS/IT Plan. This plan is a set of annual tactical and operational plans for the IS/IT organization. This plan is a foundation to develop Lights on budget to support the business units.
10. Annual and Capital Project Budget. Project budget is a set of investment budgets for annual projects. This project budget is developed based on “the capability that can be provided” for business units.
11. Annual Lights On Budget. This annual budget is for the lights on activities. This budget provides all services and supports not covered by the project budget.
12. Performance Measurement Metrics. This measurement is a metric for IS/IT and the use of IS/IT on the business.

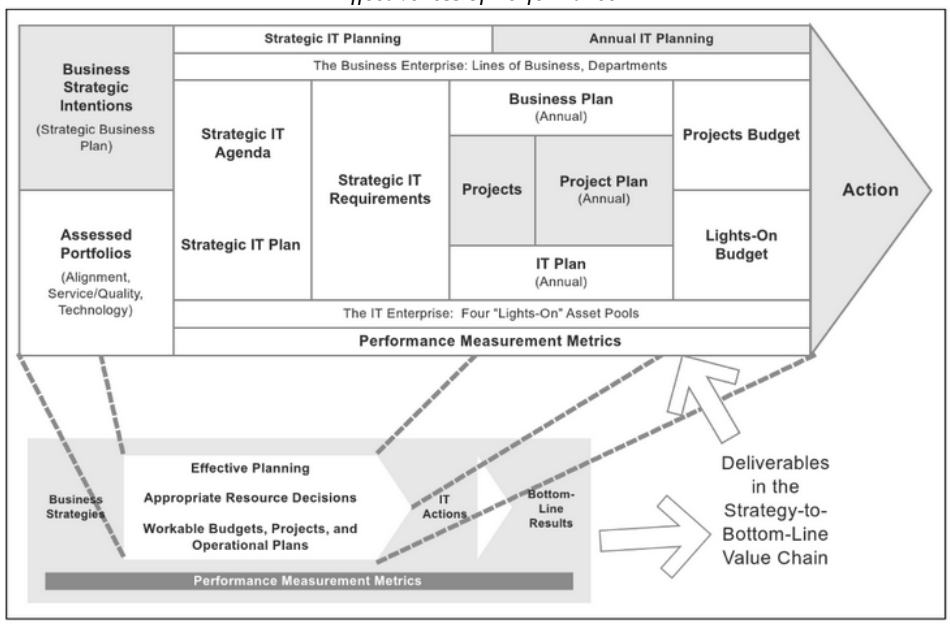

Fig. 3. Strategy-to-Bottom-Line Value Chain

Intentions reflect what the management will be doing in the future. Strategic Intention is a plan and a strategy of the management to improve the strategic and operational effectiveness [6]. Portfolio is a set of resources. A management portfolio applied at the NIE practices is a tool to be used for planning and decision making on investment and IS/IT resources.

IS / IT Portfolio has 4 basic concepts:

1. Concept 1, management portfolio is applied to the whole IS/IT resources
2. Concept 2, IS/IT resources is divided into new investment and lights on expenditure
3. Concept 3, all lights on resources is classified into application, infrastructure, service and management
4. Concept 4, new investment is also classified into portfolio strategic, factory, mandated and future strategic.

IS/IT Portfolio of the Lights On has 4 factors, there are:

1. The level of services: the availability and the speed of responses
2. Quality: functionality and accuracy
3. Technology: architecture, vendor supports and stability, technical supports and the availability of the market or industry supports
4. User intensity: the reliance and range of users

IS/IT Project Portfolio has 2 factors:

1. Impact, it is the alignment value of the application system with the Company Strategic Intention; and
2. Risk, it is a threat towards the success of a project. The value of project risk (scale 0-10) consists of project risk or organization, defined uncertainty, technical uncertainty, IS/IT infrastructure risk, technical risk, investment risk and project management risk.

Table 1. Data Alignment

	Wgt	15	10	10	20	20	5	20	
	Weight	Cost Reduction	Supplier of Choice	Market Growth	Reduce Lead Time	Efficiency in Production	Capacity Increase	Product Optimization	Weighted total
Customer Information System	20	1	3	3	2	0	0	2	200
Supplier Information System	15	0	2	0	2	2	2	2	150
Financial Information System	15	0	0	0	1	1	1	0	45
Material Information System	30	2	0	2	1	3	3	0	330
Production Planning	20	2	1	1	0	0	0	0	80
Weighted Total		120	110	140	115	135	135	70	

After conducting a survey to the top management, obtained data on several important applications run by the company, there are: customer information system, supplier information system, financial information system, material information system and production planning. Moreover, we got the weight for each application. The highest weight is material information system (weight=30), followed by customer information system (weight-20) and production planning (weight-20). It means that the top management really focus on this application for day-to-day business process.

The next process is defining the priority for several objectives, such as: cost reduction, supplier of choices, market growth, reduce lead time, efficiency in production, capacity increase and product optimization.

The score of portfolio assessments has the scale of 0-5. The prioritization practice makes it possible for the management to agree on the provision of resources for IS/IT initiatives. This provision of resources is proposed based on the bottom line impact and its relation with the strategic intention. The alignment practice does the same for IS/IT application and the existing infrastructure [7]. The data can be seen at Table 1. The ideal planning process is facing against the elements as explained at Table 2 [1].

IS/IT has and still been the main supporting tool for running a company. Innovation in NIE consists of 4 components:

1. Business and technology monitoring;
2. Innovation visioning;
3. Business context and choices;
4. Actionable innovation.

The foundation of business priority is a tool to appraise the impact of IS/IT project bottom line and to use the most credible resources [8, 9]. Prioritization focuses on appraising the business value in terms of the impact of bottom line, from the proposed IT/IS investment.

Table 2. Strategic Intention to IT/IS Strategic Plan

	Demand		Supply
	Business Strategic Context	Strategic Plan for the use of IT	Strategic Plan for the Supply of IT
Strategic Intention	Maximize marketing effectiveness – be the best we can be	Every marketing and sales person has immediate access to complete customer information	Establish the infrastructure and staff support to enable an effective, efficient, and complete data warehouse.
Strategic Objective	Establish and improve customer communication programs. Ensure that customer service is the best in the industry.	Collect and maintain complete information about every customer interaction	Implement a phased approach to a customer data warehouse
Strategic Initiatives	Marketing – a new marketing program for dealers and distributors. Distribution – revised call-center organization to maximize time and quality responses to customer.	Establish business processes and organization support for a customer information system, leading to customer relationship management.	Work with beta group to identify best approach to a data warehouse. Purchase CRM data package.

3. Discussion

The strategic intention of PT SS can be viewed at Table 3. Lights on Portfolio at PT SS could be divided into 4 parts. They were application, infrastructure, service, and management. The percentage of each light on resource was as follows: 40% application, 40% infrastructure, 15% service, and 5% management. The portfolio of application system project to be conducted can be viewed at Table 5.

Table 3. Strategic Intention of PT SS

Strategic Intention	Objectives	Metric	Weight
Improving the efficiency and effectiveness of the production process	Production process is operating at maximum capacity	The percentage of efficiency and effectiveness	30
Improving market growth	Enhance the variety of the products and Improving good relationships with consumers	Increase the market, increase the number of customer and total of transactions	25
Reduce lead time	Use local supplier, implement sales forecast, increase number of orders	Reduced carrying cost, reduce number of stockouts, lost sales and lost customers	30
Developing PT SS as the outstanding company in Indonesia	Expanding the business by multiplying branches	Increasing the cash flows.	15

The 4 Strategic Intention was able to be carried out by the company in the long term, estimated up to 4 years to come. The mission and strategic intention above would be realized gradually, fitting the needs of the company. Besides, the strategic intention was easy to be understood by the employee. Every employee could carry out the existing mission and strategic intention well. Therefore the mission and strategic intention could push the IS/IT activities and produced an impact on the bottom line.

From the above statement, there is a conclusion that the lights on investment strategy portfolio is as follows: First, the hardware and network were enhanced if necessary (the reliance and quality were under control, the strategic alignment was stable), at a cost of Rp. 163.100.000,- . The company just needed to spend the cost at a certain time and condition (if the resources had almost depleted). Second, HRIS and software were stable (the reliance and quality were under control and the strategic alignment was ignored) at the cost of Rp. 41.800.000,-. The company just needed to do a bit of investment in the maintenance and performance enhancement. Third, helpdesk, planning/budgeting, and training (the reliance and quality were stable and the strategic alignment was ignored) at the lowest cost of Rp. 33.200.000,- The company must improve the quality of the service and management to fit the company business strategic intention.

From several analysis conducted before, the strategic needs of IS/IT as shown in Table 6 were obtained. The resulted innovation are presented as follows: (1) building Website using CRM concept that can support good interaction between consumers and business partners to find out information about the company; (2) add Billing modules into application to accelerate the billing process; (3) implementing teleconferences as a tool to be used for remote meetings; (4) building WAN network to connect among branch offices and the main office. Then there should be a centralized database; (5) designing Career Tracking System as a data management system of career development on the Human Resources Information System for Human Resources; (6) building Knowledge Management (KM) application to support the knowledge of employees in managing the company's data and information; (7) building Business Intelligence (BI) application, capable of capturing and processing data about the needs and desires of consumers and data on top products of the competitors; and (8) increasing the presence of IS/IT division as the IS/IT supporting provider on applications, infrastructure, services and management.

Table 4. Portfolio Lights On

Application, Infrastructure, Service, and Management	Work Unit	Cost (in million rupiahs)	Alignment value	Level of service	Quality	Intensity of use	
						Dependence	User
HRIS	HR department	9.1	1.44	4.5	4.5	5	3
Software	IT department	32.7	1.7	4	4	5	4
Hardware	IT department	148.6	3.04	4.5	4.5	5	5
Networking	IT department	14.5	2.52	4	4.5	5	5
Helpdesk	IT department	19	1.68	3.5	3	3	4
Planning/Budgeting	Finance department	1.8	0.45	3	3	3	4
Training	HR department	12.4	0.32	3.5	3	3	3

The result of existing projects prioritization at PT SS could be seen at Table 5. It could be viewed that the Website application required greater costs, compared to Billing system. Yet the Website gave impact on the bottom line and greater risks for the PFI. The greater risk means that more chances of higher success. Therefore the Website application system had to be developed first followed by billing system.

Table 5. Portfolio Project

Project	Impact	Risks	Cost (in Million Rp)	Portfolio
ERP Software	371	38	135	Strategic
CRM Software	264	30	77.5	Factory

Table 6. Strategic IT/IS Requirements

IT/IS Planning	Year 1	Year 2	Year 3
Outsourcing applications with the concept of Customer Relationship Management (CRM) and Enterprise Resource Project (ERP) and provide information about the company on consumers and business partners.	V	V	V
Implementing robust networking system in the company (head office and branch)			V
Implementing Knowledge Management (KM) to improved organizationa agility, better and faster decision making, and sharing specialist expertise		V	V

4. Conclusion

Conclusions from the analysis conducted on the lights on as well as the project plan that will be developed based on the company strategic intention, is as follows. First, the results of investment strategy portfolio of the lights on were (1) hardware and network were categorized to be upgraded if necessary; (2) ES and software were categorized as stable; (3) helpdesk, planning/budgeting, and training with the lowest costs were categorized as on crisis.

The requirement planning and strategies supply were producing strategies to meet the requirements of the IS/IT. The strategies were the solution of the unavailability of relationships between business and IS/IT. It was the plan on the use of IS/IT within 4 years.

Innovations that can be conducted were (1) applying the concept of CRM (Customer Relationship Management) on the web site that will be developed; (2) building networks that link and integrate branch offices with headquarters; (3) increasing the presence of IS/IT division as supporting provider of IS/IT on applications, infrastructure, services and management.

The results of the prioritization at the project that will be developed were as follows: the Website had an impact as much as 393, risks as much as 38, and costs as much as Rp. 45.500.000, - Meanwhile Billing system had an impact as much as 337, risks as much as 30 , and costs as much as Rp. 17,500,000, -. Therefore, the website had to be prioritized.

Based on the conclusions above, there are some suggestions that can be used as inputs, namely (1) the company should improve the functionality of the IS/IT and allocate the needed resources to IS / IT division. The division should support the company business strategy, which was categorized as on crisis (service and management aspects); (2) The company is expected to implement the plan of IS/IT requirements for the next 4 years consistently and realize it in well; (3) Focus on the existing innovation and creating new innovations better. Improving the organizational structure.The EDP department is converted into MIS department to give better supports to the company IS/IT; (4) The company should carry out the IS/IT project investment, fit with the results of prioritization assessment and doing prioritazion assesment for new projects in the coming year; and (5) PT SS can continue this process by conducting the practice of performance measurement, 5 other

deliverables, enterprise architecture, 2 supporting practices (IT impact and culture management), business maturity model and cost allocation.

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