Information Technology Governance (ITG) in Measuring the Importance of IT Investment Performance

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Abstract: This research study presents the IT governance in measuring IT investment's performance. This research highlights several aspects of IT investment's performance measurement in telecommunication service provider companies and commercial banks in Sri Lanka. IT governance practices will help to optimize IT - enabled investments that ensure service delivery and provide a measure to judge when things go wrong. Performance measurements of IT investment is crucial for companies to utilize their IT investments in a optimum level. This research study confirm that cooperate contribution perspective's most of the questions, user orientation perspective questions and operational excellence perspective questions were considered by the respondents against their IT investments as a measured to some extent status. On the other hand future orientation perspective questions have neutral and measured to some extent status. However the balanced scored card four perspectives IT investment's performance measures are important for these companies Sri Lanka.

Key words : IT governance, IT investment, Performance Measurement, Balanced Scored Card.

Introduction:

Information Systems Audit and Control Association (ISACA) defines IT governance as: *"The responsibility of executives and the board of directors; consists of the leadership, organizational structures and processes that ensure that the enterprise's IT sustains and extends the enterprise's strategies and objectives".*

This research paper explores Information Technology Governance (ITG) in measuring the importance of IT Investment performance. The key reason businesses fail to realize intended payoffs from their IT investments is their lack of an effective process for planning, implementing, evaluating, and institutionalizing the payoffs. It is apparent IT has no inbuilt value. Just having technology does not give any benefits or create value. Unlike many other assets, such as precious gems or real estate, the value of technology is not in its possession. Achieving value from IT, making correct investment and managing IT-related risks have become very critical for businesses. IT investment decisions should be taken at the appropriate organizational level by considering both IT and organizational factors. A well-organized IT payoff measurement system provides as a mechanism for monitoring and insuring the effectiveness of IT assets into business results. The Balanced Score Card(BSC) can be referred as an efficient framework for performance measurement, operational alignment, and organizational assessment. The BSC approach not only captures financial metrics on IT projects but also includes user, operational and innovation evaluations. Further the IT balanced scorecard method can build a relationship between IT and the business by demonstrating IT's added value to the business and its users. The performance measurement of IT investment needs good governance and processes that establish how investments will be made and particularly how the different management levels like board members, executive management and operational management will be involved in this process. U.S. Department of the Treasury (2007) stated that the performance measurement is the process whereby an organization establishes the parameters within which programs, investments, and acquisition are reaching the desired results. Measuring the IT investment's performance becomes a vital aspect in today's organization and

which helps decision makers in several ways to manage their investments effectively.

Balanced Scorecard for Performance Measurement

Balanced Scorecard was introduced by Kaplan and Norton as the performance measurement framework. The traditional ways of performance measurement methods like return on investments (ROI) just capture the financial worth of IT investments but reflect only a tangible part of the value that can be delivered by IT. But the most sophisticated IT Balanced Scorecard (IT BSC) is an evaluation that provides tangible and intangible values of the IT projects. It can be a control as a good management practice or management system to create link between IT and the business. The existing methods and tools for measuring IT investment's performance are considered to be insufficient due to the lack of strategic integration and ignoring the intangible and nonfinancial performance measures. Generally IT investment's performance measurement should address the benefits and costs at all levels of an organization covering various decision making at different levels together with suitable performance measurements. Saull, R. (2000) stated in his research the 4 perspectives of the balanced scored card as follows. The *Corporate Contribution perspective* evaluates the performance of IT from the viewpoint of executive management, the Board of Directors and the shareholders. *The Customer Orientation perspective* evaluates the performance of IT from the viewpoint of business users (our customers) and, by extension, the customers of the business units. *The Operational Excellence perspective* evaluates the performance of IT from the viewpoint of IT management (process owners and service delivery managers) and the audit and regulatory bodies. *The Future Orientation perspective* evaluates the performance of IT from the viewpoint of the IT organization itself: process owners, practitioners and support professionals.

Figure 1: Standard IT Balanced Scored Card

USER ORIENTATION How do users view the IT department? **Mission** To be the preferred supplier of information systems **Strategies** ✓ Preferred supplier of applications ✓ Preferred supplier of operations vs. proposer of best solution, from whatever source ✓ Partnership with users ✓ User satisfaction	**CORPORATE CONTRIBUTION** How does management view the IT department? **Mission** To obtain a reasonable business contribution of IT investments **Strategies** ✓ Control of IT expenses ✓ Business value of IT projects ✓ Provide new business capabilities
OPERATIONAL EXCELLENCE How effective and efficient are the IT processes? **Mission** To deliver effective and efficient IT applications and services **Strategies** ✓ Efficient and effective developments ✓ Efficient and effective operations	**FUTURE ORIENTATION** How well is IT positioned to meet future needs? **Mission** To develop opportunities to answer future challenges **Strategies** ✓ Training and education of IT staff ✓ Expertise of IT staff ✓ Research into emerging technologies ✓ Age of application portfolio

Source: Wim Van Grembergen ,"*The Balanced Scorecard and IT Governance*" Information Systems Control Journal. IT Governance Institute.

Literature Review

IT governance determines the allocation of IT investment within a firm as a result it plays a vital role in IT investment performance. Gunasekaran, A., et al (2001) well-managed IT investments that are carefully selected and focused on meeting business needs can have a positive impact on an organization's performance. Likewise, poor investments that are poorly justified or whose costs, risks, and benefits are poorly managed, can delay and even restrict an organization's performance.

Economic measures of IT business value are clearly attractive because of the objective nature of the data upon which they rely. Tallon, P. et al (1999) stated a primary criticism of economic-based studies concerns their limitations in capturing intangible impacts such as improved product and service quality, increased managerial effectiveness, and enhanced customer relations. Mahmood, M. A. (1993) research suggested that the majority of the organizations that are investing more in IT seem to be achieving superior strategic and economic performance. This motivated the researcher thus there is a need for the IT investment performance measurement in Sri Lankan organization also. Quantifying, maximizing and demonstrating the business value of IT should be top priorities for CIOs today. Further Dos Santos, B. L., (1993) stated that the financial theory suggests that managers should make investment decisions that maximize the value of the firm. On the other hand Chen, Y., et al (2006) stated that growing usage of IT has resulted in a need for evaluating the productivity impacts of IT and the current IT evaluation methods has focused on return on investment and return on management, but IT investment has impacts on different stages of business operations.

Therefore determining the right combination of mechanisms can be a very complex effort. Gu, B. et al (2008) mentioned that the firms with good IT governance can realize two to three times the value from their IT investments compared to an average firm and firms with poor IT governance obtain little return from their IT investments. IT governance determines the allocation of IT investment within a firm as a result it plays a vital role in IT investment performance. Symons, C. (2012) stated that, IT governance framework articulates decision rights with respect to IT investments to ensure that they deliver the maximum business value at an acceptable level of risk. Van Grembergen, W., & De Haes, S. (2005) stated that to implement IT governance in practice, an IT governance framework can be deployed composed of a mixture of various structures, processes and relational mechanisms. Smallen David and Leach Karen (2002) stated that the reason for the high growth rates in IT investment was that expectations were too high, especially in two sectors of the economy, telecommunications services and the dot-com sector. Bourne, M., et al (2003) defined the performance measurement system is the set of metrics used to quantify both the efficiency and effectiveness of actions. At present many methods, tools and best practices exist to support the executives together with performance measurement responsibilities.

Objective of the Research

This Research has the following objectives

- Find in what extent Information Technology Governance (ITG) is measured and monitored for the selected company's IT investment.
- Find the status of ITG's importance from the range whether they very important - not important.

Research Question

This Research has the following Questions

- What extent the IT investment's performance are measured and monitored for the selected companies from various perspective?
- What extent the IT investment's performance measures are importance for the selected companies from various range?

Methodology

The questionnaire survey methodology was used to collect the data. Basically this research is qualitative and quantitative in nature. The questionnaire consist of two parts. First part gathering the company's demographic details such as IT governance profile and IT investment profile and IT governance framework details. The second part covers IT investment performance measurement. To measure the IT investment performance the IT Balanced Scored Card (BSC) was used. The balanced scorecard 4 perspective's performance metrics were measured against IT investment performance whether they actively measured or monitor. The 5 point likert scale for this measurement namely 1 - not measured at all to 5 - actively measured and monitored. On the other hand The balanced scorecard 4 perspective's performance metrics importance also measured against IT investment performance whether they importance or not important. The 5 point likert scale for this measurement namely 1 - not important to 5 - very important.

The questionnaire consist nominal and ordinal scale types of questions. For the ordinal types of questions likert scale measurement was used. Among the available scaling methods *Comparative rating scale;* refers type of scale which requires the respondents to select their ratings as a series of relative judgments or comparisons with a benchmark. Basically this research consist of primary sources of data. The questionnaire issued to one person in each company either CEO / Head of IT / IT manager/ Senior Manager in IT Operation. During the data collection small interview kind of discussion conducted when the respondent needed some sort of assistance in answering the questions. There were 20 companies responded from commercial banking sector and 14

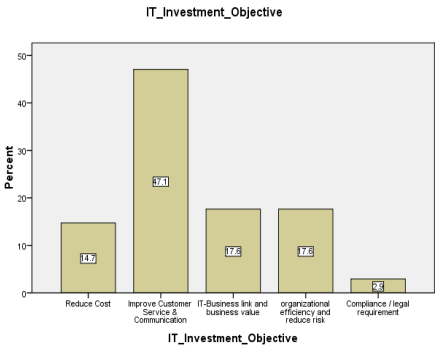
telecommunication service provider companies from telecommunication sector. The total sample size was 34 from both sector. The researcher's intention was to contact the population companies for the data collection. However some of the population companies did not participated in this survey due to several reasons like information privacy, security and corporate policy.

Discussion of Findings - Demographic Profile

Specific IT investment objective

This chart shows the IT investment specific objectives for each firm. Among the given option most of the companies were selected "improve customer service and communication" that is 47.1 % and secondly IT business link and business value that is 17.6% as the IT investment objectives.

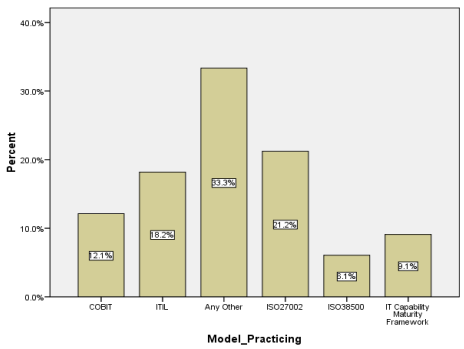
Figure 2: IT investment objective



IT Governance framework / model practicing

Among the responded companies 21.2% mentioned that they are practicing ISO standards, 18.2% mentioned they are practicing ITIL and 12.1% mentioned that they are practicing COBIT standards for their companies.

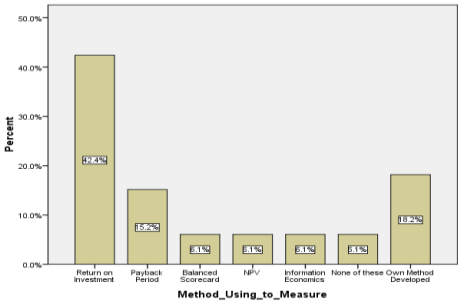
Figure 3: IT Governance framework / model



Methods using to measure the value of IT projects

Most of the responded companies mentioned that they are using return on investment that is 42.4% to measure their IT investment value. Further the own methods build in house and the payback period are in the 2nd and 3rd places.

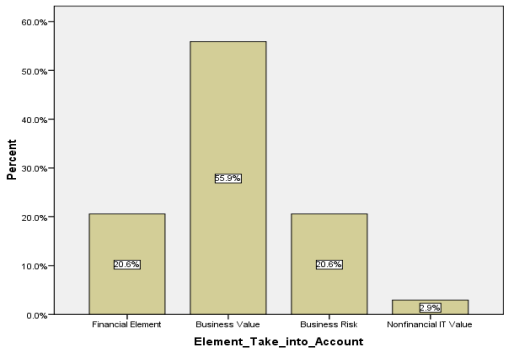
Figure 4: Methods used to measure the value of IT projects



When measuring the value of IT projects elements take into account

Most of the responded companies replied that they are considering the business value that is 55.9% when they measure the value of IT projects. Secondly business risk 20.6% and financial elements are in the same status.

Figure 5: Elements take into account



Discussion of Findings – Balanced Scored Card Perspectives

This section illustrates the descriptive measures for the balanced scorecard 4 perspectives. With the average ratings in what extent each perspective actively measured or monitored and its importance were calculated with their standard deviation. There is a general rule for dataset for a normal distribution in which the standard deviation can be used to determine the proportion of values that lies within a particular range of the mean value. Simply

the standard deviation refers how close the individual data values are from the mean value and it reveal us about the shape of the data distribution. There is a general rule says that if the standard deviation is large, it means the dataset values are spread out from their mean and if the standard deviation is small, it means the dataset values are close to their mean. For such distributions it is always the case that 68% of values are less than one standard deviation (1SD) away from the mean value, that 95% of values are less than two standard deviations (2SD) away from the mean and that 99% of values are less than three standard deviations (3SD) away from the mean. To make these results more visual and understandable results were tabulated for the balanced scorecard 4 perspective as follows.

Table 1: Corporate Contribution Perspective

Measures	Actively Measured or Monitored		Importance	
Business Value	**Mean**	**Std. Deviation**	**Mean**	**Std. Deviation**
Financial KPI	4.03	1.029	4.24	0.855
Non Financial KPI	3.97	0.969	4.26	0.751
Strategic Alignment				
Contribution IT Strategy Business Strategy	3.97	0.937	4.03	0.717
Balance business value required resource	3.82	0.936	3.91	0.793
Cost Control				
Project Delivered on time on budget	4.26	0.898	4.53	0.615
Spend budget during current year	4.24	0.923	4.03	0.627
Risk Control				
Key Risk Without CEO intervention	3.79	0.946	4.06	0.694
Business Incident caused by project	3.79	1.175	3.85	0.784
IT Disabler business strategy IT strategy	3.56	1.186	3.82	0.834

The above result reveals that, the IT investment balanced scorecard has average score for all sub questions under the cooperate contribution perspective. Mean scores for all questions for the column "Actively measured or monitored" has nearest value of 4 except 1 question that score is 3.56. The value 3 and 4 ranked in the questionnaire "Neutral" and "Measured to some extent" respectively. The corporate contribution perspective "importance" column scored to nearest value of 4. It ranked in the questionnaire to "important". Therefore the corporate contribution perspective most of the questions were considered by the respondents as their IT investments were in a measured to some extent except 1 question and these measures are important for their company. Further the standard deviation for the column "Actively measured or monitored" scored to the nearest value to 1 standard deviation . The standard deviation for the column "Importance" scored to below than 1 standard deviation. Since these values are small, data are closer to their mean score.

Table 2: User Orientation Perspective

Measures	Actively Measured or Monitored		Importance	
Business Executive Satisfaction	**Mean**	**Std. Deviation**	**Mean**	**Std. Deviation**
Satis Current IT investment portfolio	3.68	1.007	3.85	0.784

Satis direction of portfolio	3.5	0.929	3.79	0.808
Satis project meeting expectation	4.12	0.808	4.24	0.699
Satis IT Staff skills	4.18	0.834	4.41	0.609
End User Satisfaction				
Satis after project delivery	4.18	0.869	4.35	0.774
Internal Service Quality IT Delivered	3.94	1.127	4.38	0.697

The above result shows the IT investment balanced scorecard has average score for all sub questions under the user orientation perspective. Mean scores for all questions for the column "Actively measured or monitored" has nearest value of 4 except 1 question that score is 3.5. In the questionnaire 3 and 4 ranked to "Neutral" and "Measured to some extent" respectively. The mean scores for all questions for the column "importance" scored to nearest value of 4. It ranked in the questionnaire to "important". Therefore the user orientation perspective questions were considered by the respondents against their IT investments measured to some extent except 1 question thus neutral kind of status and these measures are important for their company. Further the standard deviation for the column "Actively measured or monitored" scored to the nearest value to 1 standard deviation . The standard deviation for the column "Importance" scored to below than 1 standard deviation. Since these values are smaller, data are closer to their mean score.

Table 3: Operational Excellence Perspective

Measures	**Actively Measured or Monitored**		**Importance**	
Portfolio Level Processes	**Mean**	**Std. Deviation**	**Mean**	**Std. Deviation**
IT Strategy meetings Business Rep Partici	3.79	1.122	4.38	0.697
Freq IT Resource Utilization require Review	3.85	0.821	4.15	0.784
Freq overall portfolio budget review	3.71	1.142	4	0.696
Portfolio planning meeting business Rep participate	3.76	0.987	4.03	0.717
Program Level Process				
New program detailed business case	4.15	0.744	4.29	0.579
Program have accountability ownership	4	0.985	4.21	0.641
Program internal compliancy Review	3.74	0.898	4.21	0.77
Total vendor evaluated year	3.74	0.931	4.18	0.626
Project performance regularly available	3.76	0.987	4.21	0.592
Project receiving post implementation review	3.65	0.884	4	0.816
Other Relevant Processes				
Project reviewed by IT architecture board	3.79	0.978	4.12	0.769
Project receiving quality review	3.76	0.955	4.12	0.769
Availability completeness accuracy	4.18	0.797	4.26	0.567
Adequate user support training	4.21	0.729	4.44	0.613

The above result shows the IT investment balanced scorecard has average score for all sub questions under the operational excellence perspective. Mean scores for all questions for the column "Actively measured or monitored" between 3.6 - 4.25. Under this column most of the values are nearing to 4. It ranked in the questionnaire to "Measured to some extent". The mean scores for all questions for the column "importance" scored to absolutely 4 and above. It ranked in the questionnaire to "important". Therefore the operational excellence perspective questions were considered by the respondents against their IT investments measured to some extent and these measures were important for their company. Further the standard deviation for the column "Actively measured or monitored" scored to the nearest value to 1 standard deviation . The standard deviation for the column "Importance" lies between 0.5 - 0.85 thus below than 1 standard deviation. Since these values are small, data are closer to their mean score.

Table 4: Future Orientation Perspective

Measures	Actively Measured or Monitored		Importance	
IT HRM	**Mean**	**Std. Deviation**	**Mean**	**Std. Deviation**
Satisfied IT personnel	3.87	1.008	4.47	0.671
Days to fill IT service	3.22	1.008	4.19	0.859
IT training on IT budget	4	0.672	4.31	0.931
Knowledge Management				
Importance docs lessons learned KMS	3.79	0.88	4.21	0.687
Use of KMS	3.41	0.988	4.03	0.758
IT Architecture				
Architecture considered flexible	3.47	0.992	3.97	0.937
Current architecture compliant	3.59	0.857	4.15	0.61
Emerging Technologies				
IT investment budget allocated to IT innovation	3.35	1.228	4.21	1.067
Satis top mgt emerging technology	3.59	0.988	4.32	0.878

The above result shows the IT investment balanced scorecard has average score for all sub questions under the future orientation perspective. Mean scores for most of the questions for the column "Actively measured or monitored" scored nearest value of 3 and 2 questions scored to nearest value of 4. In the questionnaire 3 referred "neutral" and 4 referred to "measured to some extent". According to the generated mean score it can be concluded that the future orientation perspective questions were considered by the respondents against their IT investments referred to kind of *neutral and measured to some extent* status. The mean scores for all questions for the column "importance" scored to absolutely 4 except 1 score that is 3.97. In the questionnaire 4 ranked to "important". Therefore the future orientation perspective question's measure were considered by the respondent against their IT investments important for their company. Further the standard deviation for the column "Actively measured or monitored" scored to the nearest value to 1 standard deviation. On the other hand the standard deviation for the column "Importance" scored between 0.5 - 1 thus below than 1 standard deviation. Since these values are small, data are closer to their mean score.

Conclusion

The aim of this research study is to present an analysis of IT governance in IT investment's performance measurement. Measuring IT investment performance should be a key concern to business and IT executives as it demonstrates the effectiveness and add business value of IT. Economic measures of IT business value are clearly attractive because of the objective nature of the data upon which they rely. However a primary criticism of economic-based studies concerns their limitations in capturing intangible impacts such as improved product and service quality, increased managerial effectiveness, and enhanced customer

relations. To analyze the IT investment performance the balanced scored card was used. From this research study IT balanced scorecard is suggested as a good performance measurement tool to measure the IT investment performance. The IT Investment balanced scored card is an excellent starting point which discuss and demonstrate about performance measurement of IT investments, because it gives a complete view of performance measures. The IT balanced scorecard's 4 perspectives can be concluded such as *cooperate contribution perspective's* most of the questions were considered by the respondents against their IT investments as a measured to some extent status except 1 question and these measures are important for their company. The *user orientation perspective* questions were considered by the respondents against their IT investments as measured to some extent except 1 question thus neutral kind of status and these measures are important for their company. The *operational excellence perspective* questions were considered by the respondents against their IT investments as measured to some extent and these measures are important for their company. Further *future orientation perspective* questions were considered by the respondents against their IT investments as *neutral and measured to some extent* status and its measurement is important for their company.

From the IT Balanced Scored Card point of view the general idea is the corporate contribution and user orientation perspective shows outcomes of IT investments and operational excellence and future orientation shows performance drivers for organizations. In Sri Lankan context except the well established firms several firms are at the beginning of measuring the performance of IT investments since these best industry practices and standards are booming concept in the industry. Thus many firms have already initiated to appraise the performance of their IT investments but it will take some time to transfer into the fully-fledged performance measurement environment. A general recommendation can be forwarded for organization that; the best industry practices such as COBIT, ITIL and Val IT should be practiced in a monitored and governed environment.

References:

Bourne, M., Neely, A., Mills, J., & Platts, K. (2003). Implementing performance measurement systems: a literature review. *International Journal of Business Performance Management*, *5*(1), 1-24.

Chen, Y., Liang, L., Yang, F., & Zhu, J. (2006). Evaluation of information technology investment: a data envelopmentanalysis approach. *Computers & Operations Research*, *33*(5), 1368-1379.

De Haes, S., & Van Grembergen, W. (2004). IT governance and its mechanisms. *Information Systems Control Journal*, *1*, 27-33.

Dos Santos, B. L., Peffers, K., & Mauer, D. C. (1993). The impact of information technology investment announcements on the market value of the firm. *Information Systems Research*, *4*(1), 1-23.

Gu, B., Xue, L., & Ray, G. (2008). IT governance and IT investment performance: an empirical analysis. *Available at SSRN 1145102*.

Gunasekaran, A., Love, P. E., Rahimi, F., & Miele, R. (2001). A model for investment justification in information technology projects. *International Journal of Information Management*, *21*(5), 349-364.

Luftman, J. (2004). Assessing business-IT alignment maturity. *Strategies for information technology governance*, *4*, 99.

Mahmood, M. A. (1993). Associating organizational strategic performance with information technology investment: an exploratory research. *European Journal of Information Systems*, *2*(3), 185- 200.

Saull, R. (2000). The IT Balanced Scorecard-A roadmap to effective governance of a shared services IT organization. *Information Systems Control Journal*, *2*, 31-39.

Smallen David & Leach Karen (2002) 7 Benchmarks for Information Technology Investments, Educause Quarterly.

Symons, C. (2012). From IT governance to value delivery. Available at: http://www.isaca.org/Groups/Professional-English/it-value-delivery/GroupDocuments/From%20IT%20Governance%20to%20value%20delivery.pdf

Tallon, P., Kraemer, K. L., & Gurbaxani, V. (1999). A value based assessment of the contribution of information technology to firm performance. Center for Research on Information Technology and Organizations, University of California

U.S. Department of the Treasury (2007). Treasury IT Performance Measures Guide Office of the Chief Information Officer (OCIO), Enterprise Architecture Program .

Van Grembergen, W., & De Haes, S. (2005). Measuring and improving IT governance through the balanced scorecard. *Information Systems Control Journal*, *2*(1), 35-42.

Wilkes, J. (2004). Corporate governance and measuring performance. *Measuring Business Excellence*, *8*(4), 13-16.

Appendix:

IT Investment Performance - Balanced Scorecard Perspectives Questions

Corporate Contribution perspective	**Business Value** i. Financial KPIs - increased profitability, productivity, earnings this might look like monthly financial measures, like NPV, IRR ii. Non-financial KPIs - improved competitiveness, new product sales, lower development lead times, customer satisfaction this might look like yearly figures **Strategic alignment** i. Contribution of current and future IT investments to IT strategy and business strategy goals - Biannual overview of mapping of IT investments to the IT and business strategy ii. Balance between expected business value, required resources and risks of investments in portfolio. This might look like biannual value / risk matrix displaying initiatives rated on common risk and value criteria **Cost Control** i. Projects delivered on budget, on time. This might look like... Monthly update per programme / project on budget vs. actual and the status of key milestones ii. % spend of total investment budget during current financial year. This might look ... monthly update **Risk** i. Key risks & issues impacting delivery of projects without CEO intervention - might look like update on blocking risks/dependencies & issues of in-scope programmes, including proposed mitigating actions & owners ii. Business incidents caused by projects - This might look like .... weekly update about any business disrupting incidents, caused by the project portfolio iii. IT disablers for the execution of the business strategy and IT strategy - This might look like Regular overview of the biggest IT obstacles for realizing the business & IT strategy.
User Orientation perspective	**Business Executive Satisfaction** i. Satisfaction with current IT investment portfolio - This might look like.. Biannual or annual satisfaction survey within the population of decision makers. ii. Satisfaction with direction of portfolio, with choices(Priorities) following from the IT strategy. - This might look like... Biannual of annual survey iii. Satisfaction with programs and projects meeting expectations (on time & on budget, delivering required functionality) - This might look like... Biannual or annual survey iv. Satisfaction with IT staff skills (understanding of business, relevant solutions etc) - This might look like.. Biannual or annual survey within the population of decision makers. **End User Satisfaction** i. Satisfaction after project delivery (with functionality, quality,

	usability etc) - This might look like.. survey conducted some period after project closure and the delivery of the applications / services. ii. Internal service quality (customer satisfaction) for IT services delivered - This might look like... Annual end user satisfaction survey for IT services.
Operational Excellence perspective	**Portfolio level processes** i. % of IT strategy meetings where business representatives have actively participated. - This might look like... Annual update on involvement of business representatives / decision makers in IT meetings regarding planning and defining the IT strategy ii. Frequency of resource utilization and requirements reviews. - This might look like (Bi)monthly update about available vs. required resources (gaps) across the IT programme portfolio as a whole iii. Frequency of overall portfolio budget reviews - This might look like... quarterly financial update on the status of the budget of the IT investment portfolio as a whole. iv. % of portfolio planning meetings where business representatives have actively participated. - This might look like... Annual update on involvement of business representatives / decision makers in IT meetings regarding prioritization of IT initiatives / programs. **Programme level processes** i. % of new programmes which have a detailed business case (Feasibility study, benefits, costs, risks, required resources etc) - This might look like (Bi)annual update on the above. ii. % of programmes which have clear accountability and ownership- This might look like...(Bi)annual update if programmes have a clear accountability for achieving benefits, controlling costs, managing risks etc. iii. % of programmes subjects to internal / external compliancy reviews - This might look like....(Bi)annual update to what level programmes are subject to internal audit and external regulatory compliance reviews. iv. % total vendors evaluated per year - This might look like...(Bi)annual update on the performance of vendors contracted in programmes. v. % of programmes & projects where performance information (budget status, risk/issues, milestone, benefits) is regularly available. - This might look like .... monthly progress status report per programme vi. % of programmes & projects receiving post-implementation review. - This might look like.... (Bi)annual report of programmes reviewed on the business case, targets etc. after implementation. **Other relevant processes** i. % of projects / initiatives reviewed by IT architecture board - This might look like... (Bi)annual update of the above ii. % of projects receiving quality assurance review. - This might look like ....(Bi) annual update of the above. iii. Availability, completeness and accuracy of user and operational documentation - This might look like....(Bi)annual update on the quality and quantity of documentation mentioned above iv. % of applications with adequate user and operational support training - This might look like...(Bi)annual update on quality and quantity of training mentioned above.

Future Orientation Perspective	**IT HRM** i. % of satisfied IT personnel (not including end users) - This might look like....(Bi)annual on job satisfaction of IT personnel. ii. Average no of days to fill IT vacancies. - This might look like...(Bi)annual on shortages in IT personnel and average times to fill in vacancies. iii. IT training and development budget as % of total IT budget - This might look like.... (Bi)annual update on professional development of IT staff. **Knowledge Management** i. % of projects that have important projects docs & lessons learned on knowledge management system. - This might look like....(Bi)annual update on no and quality of project evaluations uploaded in KMS ii. Use (Contributions, page views) of KMS - This might look like...(Bi)annual update on usage statistics of KMS **IT architecture** i. % of architecture considered flexible and modular - This might look like...(Bi)annual survey among relevant business and IT stakeholders about the IT architecture. ii. % of current architecture compliant to target architecture. - This might look like...(Bi)annual update on IT architecture status vs. target architecture. **Emerging Technologies** i. % of IT investment budget allocated to IT innovation - This might look like....(Bi)annual update on used / required budget and project results for IT innovation ii. Perceived satisfaction of top management with the reporting on how specific emerging technologies may or may not be applied in the organization - This might look like....(Bi)annual results of satisfaction survey among top management about reporting on emerging technologies.