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The Management of Risk And Strategy in the Integration of Erp Systems

SUMMARY

The Balanced Scorecard methodology provides a quantitative basis for measuring the performance of Enterprise Resource Planning systems against multiple criteria. It can be used to guide organisational IT alignment and the decision-making process during strategic planning. Using Key Performance Indicators, organisations can configure their Enterprise Resource Planning modules to align with their overall business strategy, to improve their overall efficiency and effectiveness. Inadequate performance control and project management practices during IT integration projects lead to unrealistic expectations, cost and time constraints, a protracted implementation process, lack of training and poor division of responsibilities, all of which can strain and obstruct operational control.

Keywords: Erp, IT, Project Management, Risk Management, Management Control, Jel-Code: M15

INTRODUCTION

IT systems can be used in a variety of ways to improve management control in organisations. With the help of IT systems, we can monitor and manage organisational performance, including hardware, software and networks, to ensure that they operate efficiently and effectively. IT systems can also be used to establish effective risk management frameworks to identify, assess and mitigate risk, which is key in managing assets (Tohidi, 2011). The dimensions of effectiveness and efficiency at each stage of the supply chain are assessed differently by each com-

pany, and therefore the risk dimensions considered will also be different.

IT audits can help to automate business controls that support business governance and management to monitor IT applications and infrastructure. The relationship between management accounting, control and IT can be further studied to improve its relationship with IT. By applying the proper management control principles when integrating IT systems, organisations can improve management control and achieve their goals and objectives more effectively (Dechow et al., 2006).

Usually, the biggest source of uncertainty in IT systems integration stems from the user. The relationship between users and the technology must be continuously assessed. The role of the controller is that of a coordinator, aiming to combine and share IT and organisational knowledge with the appropriate operational, tactical and strategic stakeholders, to control, plan and maintain information flow and an iterative risk management process.

Methodology

This article aims to improve the management control process necessary to integrate ERP systems by examining the current state of the field and relevant related publications, providing a focused assessment of the literature on IT management, ERP and business development. This article highlights the combination of management control, risk management and strategic business alignment as the pillars of successful IT integration projects.

Table 1: ERP integration risk factors

User risk	Project management risk	Technological risk	Team risk	Organisational risk	Project performance risk
Inadequate training	Underestimation of effort required	Inadequate IT infrastructure	Lack of involvement of key corporate actors	Inadequate implementation strategy	Inadequate support from the ERP vendor
Resistance to change	Inadequate project monitoring	Excessive personalisation	Lack of ERP product knowledge	Inadequate leadership	Business uncertainty
Inadequate responsibility framework	Inadequate design	Inappropriate ERP product selection	Lack of experience	Inadequate senior management commitment	Inadequate system performance testing
Inadequate knowledge distribution	Inadequate project management support	Inaccurate data conversion	Inappropriate attitude	Instability of configuration	No appropriate documentation
	Inadequate communication	Prototyping	Inadequate member performance	Complex project	Continuous rapid change in demand
	Constant changes to the scope of the project		Team breakdown and high drop-out rate	Inadequate coordination between departments	
				Rushing the project	

Source: based on (Garg and Khurana, 2017)

RESULTS

In IT integration projects proper risk management can only be achieved with the right management control tools. System engineers can't assess enterprise information systems at the organisational level. IT technicians are responsible for ensuring the proper functioning of systems along technological dimensions. Technologically sound IT capabilities allow organisations to more efficiently utilize resources. The role of risk management is to control emerging IT capabilities within certain constraints, keeping them at acceptable tolerance levels. IT systems like ERP have numerous risk factors that if left unchecked could lead to an unacceptable decline of performance metrics.

The key factors to a proper IT integration process are thorough project planning, empowered project management and continuous project evaluation. When it comes to successful ICT projects usually half of the financial resources are allocated to the project preparation and planning phases.

To properly define risks in Industry 4.0 projects, it is crucial to clearly define data structures to be processed (Tupa et al., 2017). Often the expectations of IT projects constantly change and the timeframes for delivering projects keep getting tighter. Management expectations, user satisfaction and the change management process are project defining budget constraints (Islam et al., 2014).

The lack of organisational readiness in the planning phase of projects pose critical risk to successful IT system integrations. Quantitative and probabilistic risk analysis tools should be complemented by socio-technical tools focusing on the relationship between people and machines, to ensure that human values and efficiency factors are not in conflict (Aven –Ylönen, 2018).

In the area of cybersecurity risks, there is a significant asymmetry in internal value relations when it comes to detecting security risks and establishing appropriate levels of preparedness (Nam, 2019). Financial institutions are the most vulnerable to cyber-attacks, and the most dangerous form of attack usually bypasses technological constraints in the form of social engi-

neering, which targets employees directly (Varga et al., 2021). Mapping the cyber ecosystem can help highlight the sources of risks in external operating environments. By comparing external and internal exposures, the company can develop a cost-effective information base. Fast Analytics, Big Data and Business Intelligence are the three main tools for utilising corporate databases (Larson – Chang, 2016).

Inappropriate system usage and management expectations that go beyond IT capabilities are barriers to effectively maintaining information systems (Lopez – Salmeron, 2014). When it comes to choosing project methodology, unlike the classical approach, the agile approach focuses on achieving more flexible overall project outcomes (Burganová – Šimíčková, 2019). The focus of agile software development is on the relationship of risk and value. Continuous feedback manifests as both risk and opportunity. Value maximalization manifests in the capability to flexibly adapt to changes in project expectations (Beecham et al., 2021). In the agile approach, the product can be tested during the prototyping phase. Agile design inherently integrates risk management practices to support experimentation. Furthermore, distributive software development and distributive agile development can enable companies to compete for experts in the global labour market.

When identifying risk factors, it is paramount to explore cause and effect relationships. During risk analysis, we assess the degree of exposure. Risk assessment forms the basis for a priority system which we can use to create resource allocation plans. Resources are pre-allocated, but project crisis plans are continuously assessed in the context of project monitoring. It is important to make an effort in capturing organisational experience and knowledge. By creating project databases, the corporate knowledge gained from successful and unsuccessful projects support the planning phases of new projects in a cost-effective manner. The main reason corporations want to control risk is to support and attain strategic goals. A pre-planned business strategy is the basis of every IT integration project including ERP. Each and every system needs to be inte-

Table 2.: The relations of ERP functionality and BSC perspectives

Learning and development					
BSC	Number of training hours	Inheritance plan	Power measurement	Employee liability	Staff turnover rate
ERP	Employee management	Organisation management	Travel management	Payroll	Talent management
Internal processes					
BSC	Differences	Product development and market launch	Working capital	Supplier capacity	Existing capacity
ERP	Quality Management	Production planning	Sales distribution	Sourcing	Supplier Relationship Management
Customer contact					
BSC	Customer satisfaction	Service provider interface	Market share	Customer loyalty	Sales interface
ERP	CRM	Request for proposal	Marketing management	Seller-buyer cooperation	Sales territory management
Finance					
BSC	Cash flow	Profitability	EBIDTA	Revenue growth	ROI
ERP	General ledger	Account management	MRP material design	Cost/Profit management	Resource management

Source: based on (Ranjan et. al., 2017)

grated with the corporate strategy in mind, to support appropriate performance metrics. The Balanced Scorecard (BSC) approach can be used to support the configuration of Enterprise Resource Planning (ERP) modules and to set up proper KPIs.

The BSC approach is designed to support different organisational performance measurement structures and can be used to transform vision and strategy into a consistent set of performance metrics. The BSC approach consists of four dimensions: financial, customer, internal business processes and learning and development. These dimensions can be used to define and set strategic objectives. The objectives are then translated into measurable performance indicators that can be used to monitor performance while highlighting the current state of the business (Shen et al., 2016). KPIs can then help you to measure the performance of each ERP module and ensure that they align with strategic goals and objectives. The specific KPIs should be tailored to the unique needs and priorities of each organisation on a case-by-case basis.

CONCLUSIONS

When it comes to the integration of ERP systems the first step is to consider project cost and complexity. The budget will be significantly influenced by the range of business functions supported and the project management capabilities of the ERP vendor. The complexity of the project is a combination of the software configurations, the resources to be released for implementation and the scope of the required process re-engineering. Finding the optimal balance between modifications and new processes is key.

ERP experts are usually external advisors that are assigned to internal project teams. The effectiveness of the implementation depends to a large extent on the decision-making competence of the project manager and the effectiveness of the division of work between project teams and members during the integration.

It is a key management responsibility to ensure the availability of essential resources, such as FTEs (Full Time Equivalents), access to key personnel and data. During the initialization of the ERP roll-out process, it must be ensured that decisions are delegated to people with the appropriate competencies so project tasks are done within the necessary timeframe. The project lead should focus attention on risk factors such as unreliability of project members, lack of authorization, and an inappropriate level of management support for process re-engineering.

IT system integrations are effective for performance driven companies with good internal communication. IT systems help them to be more transparent to increase their ability to manage outflow and optimise their financial processes. After a successful ERP integration, corporate databases will become more reliable, reporting time will be reduced, accounting discipline will be improved and coordination with the parent company will be further facilitated.

On the other hand, a flawed change management process can lead to an inadequately prepared roll-out. When specific requirements remain concealed, falsely assessed IT requirements and dysfunctional design hinder organisational capability. Dysfunctional ERP systems are more pronounced in domestic SMEs where there are disagreements in ownership and management control. A faulty and strategically unaligned inte-

gration of an ERP configuration will inevitably lead to unnecessary bloat. During planning we must be careful because the nature of virtual mapping and design can lead to self-serving IT solutions, where the priority is given to software functionality over usability and business efficiency. Most often this is characterised by the old system and the new system operating in parallel, where only some of the modules of the ERP system are functional, managers still communicate mostly on paper, the human resource planning necessary to maintain the system is not in place and therefore strategic thinking and planning are hindered. A well-designed technologically integrated environment supports innovation. IT integration improves operational performance, reduces costs and increases flexibility. It improves employee performance tracking and allows for further measurements of performance control which in turn reinforces organisational learning capability. All these factors contribute to improving operational efficiency (managing the risks) and effectiveness (managing the strategy).

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