

DECISION MAKING ON FUNCTIONAL INTEGRATION: THE ANALYTICAL APPROACH

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Abstract

Conventional scientific practice normally emphasizes benefits of functional integration but pays little attention to potential problems that may arise when organizations try to integrate their functions. The paper suggests that managers, before doing any steps towards functional integration, must develop specific criteria and indices to thoroughly estimate the current environmental situation and the necessity for integration, as well as possible outcomes of that integration. The analytical technique that may help managers thoroughly evaluate prerequisites and consequences of functional integration for better decision making is presented in the article.

Keywords: *function, integration, functional integration, analysis, integration mechanism, integration state, criteria, indices.*

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1. INTRODUCTION

While there are no doubts about advantages and benefits of functional integration, the very achievement of a high integration level can be associated with considerable financial expenses and organizational problems. Therefore managers, making decisions on their business functional spheres integration, must realize that expected positive outcomes demand much effort and take steps towards thorough analysis of all potential difficulties and bottlenecks, related to this.

Despite the great volume of scientific research, the understanding of functional integration still remains quite vague, especially the integration-performance link remains elusive, requiring further theorizing and empirical assessment (Barki and Pinsonneault, 2005). It is deemed a priori, that the mere implementation of any integration mechanism will ultimately lead to positive outcomes, but the existence of cross-functional teams or ERP software does not mean at all that the organization is indeed integrated. Besides that, problems arise when functional managers fail to efficiently establish contacts between their departments, and the need to solve everyday conflicts wastes top-management time and effort and slows decision making (Jones and George, 2006, p. 362).

In many research papers the definitions of the categories “function” and “integration” are either not provided at all or receive different interpretation. The papers also lack fundamental criteria and analytical techniques, which could help objectively evaluate necessities, possibilities and chances to achieve functional integration.

Such a situation requires some further theoretical development of the categories “function” and “integration”. Every function is unique and its contribution to the day-to-day business of the organization is also unique. Therefore a deeper understanding of functions, their types and roles they play, supporting the achievement of organizational goals, will allow to identify criteria for integration processes implementation. This is particularly relevant since the general concept of functional integration is directly related to the managerial decision making regarding the development and the future success of the business.

2. LITERATURE REVIEW

Despite the fact that the literature has addressed already much attention to the integration of business functional spheres, it is necessary to emphasize several issues, to which a closer attention should be paid:

- first, authors often do not agree what key business functions must be integrated to increase the overall performance of a company or a supply chain. Consideration of dyads, such as logistics-manufacturing, logistics-marketing etc., is the most common approach in literature (Gimenez and Ventura, 2002; Stock et. al., 1998; Chikan, 2001). Some authors consider functional integration in a wider way, for example Mark Pagell (2004) states that “the lack of integration is partially due to a lack of knowledge as to how integration between manufacturing, purchasing and logistics is actually achieved” (p. 464). Others propose even more comprehensive approach. According to Mentzer et al. (2001) integration processes must embrace the traditional business functions of marketing, sales, research and development, forecasting, production, procurement, logistics, information technology, finance, and customer service;

- second, scientific papers sometimes propose different interpretation of the term “integration”. On the one hand, integration is defined as the specific state, when all business functions of the organization interact and collaborate with each other as the entire whole (Kahn and Mentzer, 1998; Sherman et al., 2000; Lawrence and Lorsch, 1986), on the other hand – as particular mechanisms, use of which can lead to that state (Perona and Saccani, 2004; Romano, 2003; Pagell, 2004; Swink et al., 2007). It is not quite understandable herewith, what exactly has been done, and what indices reflect the achieved state of integration. Describing the advantages of functional integration, authors indicate only that a higher integration level allows to “improve the overall efficiency” (Stank et. al., 2001; Gimenez and Ventura, 2003), “increase the value for customers” (Lambert et al., 1998) or “obtain a competitive advantage” (Monczka et al. 1998; Swink and Song, 2007).

Such a broad interpretation of integration advantages requires deeper theoretical assessment. In other words, it is necessary to answer the question “how exactly does integration promote higher performance?” (Turkulainen and Ketokivi, 2012, p. 449), and “what indices can be used to reflect that promotion?”

To answer these questions, managers must have at their disposal clear and distinct analytical techniques which will allow them to determine prerequisites and possibilities for

functional integration, establish criteria for evaluation of integration mechanisms and attained integration level. The development of such techniques demands at first a more detailed look at the categories “function” and “integration”.

3. BUSINESS FUNCTIONS AND THEIR CATEGORIES

The existence of discrepancies concerning the set of functions, which should be integrated, can be probably explained by the fact, that the researchers neither propose their own understanding of the term “business function”, nor give a reference to any definition, that their research is based on. In recent years, however, the concept received a lot of attention due to the increasing role of IT in business and expansion of concepts like functional integration, supply chain management, process management etc. Such a situation calls for more precise definition of business function.

The literature defines function in two, quite different ways. In management theory, a function is defined as a unit or department in which people have the same skills or use the same resources to perform their jobs (Jones and George, 2006, p. 263). However, in functional integration context, a system understanding of function seems to be more relevant. Specifically, the definition of function from the IT point of view is particularly interesting, so far as IT expansion, several decades ago, impacted on the development of integration concepts in business. Here, a business function is defined as series of related activities, performed for direct or indirect purpose of fulfilling one or more missions or objectives of the organization (Modell, 1996, p. 205; Suh and Han, 2003 p.151). This definition is not focused on physical or spatial characteristics of a function, but rather distinguishes its process nature, which determines the function’s specific essence and the way it contributes the goals of the business. Since the process approach to management aims to restrict the system risk, that arises from processes imperfection, and ensures coordination of processes (Szczepańska, 2009, p. 115), it allows also managers more thoroughly consider peculiarities of integration. Using this approach it becomes possible to understand how functions, while being integrated, interact and complement each other, optimizing the overall organizational efficiency and effectiveness.

At the same time, it is important to emphasize that there are two categories of functions: *operational* and *administrative*. Functions in operational category consist of those activities which are directly involved in producing the products, providing the services, generating the

revenues and profits of the firm, or managing those areas. Administrative category contains those functions which service the firm as a legal entity and provide for its day-to-day well-being. The administrative category usually contains functions such as personnel, finance, general accounting, buildings and maintenance, executive management (Modell, 1996, p. 35, 206). Apart from the above mentioned, the IT function can be mainly also categorized as administrative, because its main concern is the business processes support.

The main distinctive feature of the operational functions is the fact that they are designed to create value for customers, whereas the administrative functions create only internal value for the organization. That is, the operational functions form the value chain and generate revenue for the organization, the administrative functions are indifferent for customers and are associated mostly with a cost. However, this does not mean, that the administrative functions should be treated as functions of an inferior level. Yet, the better they perform their role, the better they support operational functions, and the better are possibilities for the organization to satisfy its customers needs. In general, the relationship between operational and administrative functions is depicted in Figure 1.

For example, accounting does not create any value for customers, but helps the other functions, such as procurement, timely and quickly pay suppliers bills. Integration of procurement and accounting functions allowed Ford Motor Company to reduce the amount of unproductive activities. The management at Ford discovered that procurement began when the purchasing department sent a purchase order to a supplier and also sent a copy of the order to the accounting department. When the ordered goods arrived at Ford, a clerk at the receiving dock completed a form describing the specifications of the arrived goods and sent the form to accounting department. In meanwhile, the accounting department received also an invoice from the supplier. In the end, the accounting department had three documents relating to these goods: a copy of the original order, a form with goods specifications, and the invoice. If the information in all three coincided (normally it did), a clerk in the accounting department issued the payment. The managers at Ford also discovered that clerks in the accounting department spent most of their time clarifying the information, if the documents contained conflicting information. The quantity of such conflicting documents never exceeded 1% of the overall documents circulation (Hammer and Champy, 1993).

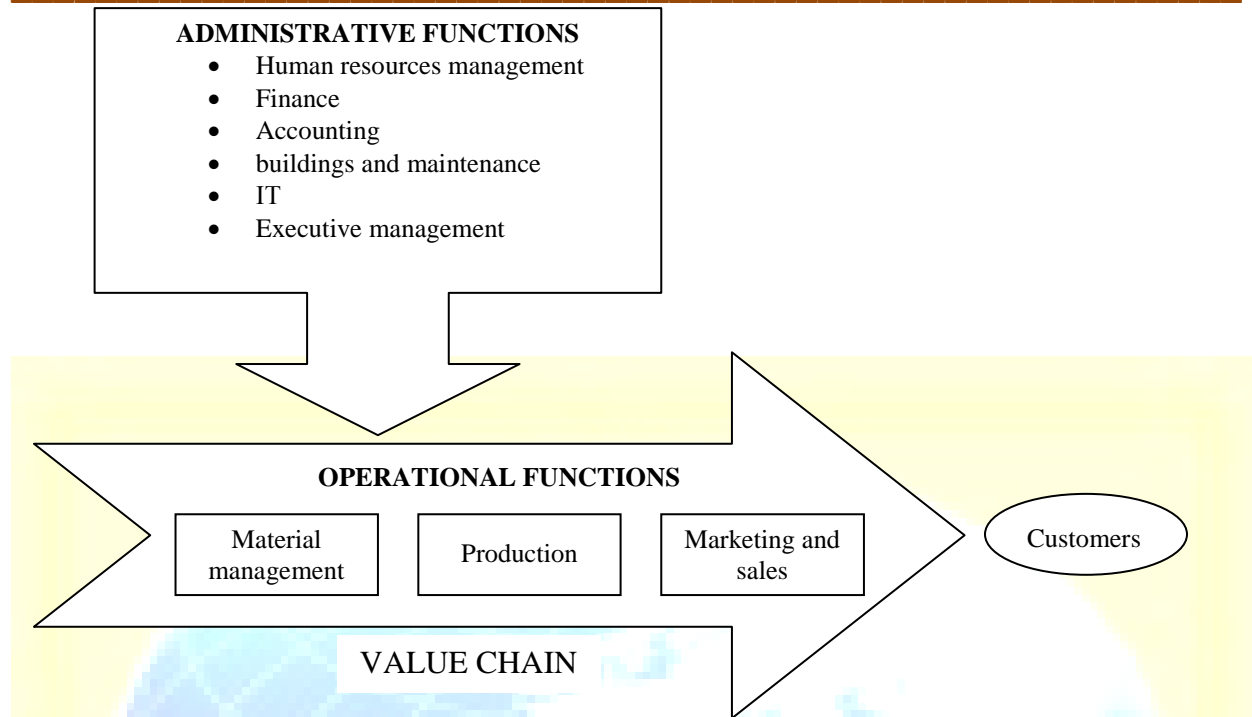


Figure 1: Value chain and administrative functions

Source: developed by author

The fact that the integration researches usually consider only operational functions, neglecting the administrative ones, may be the reason for discrepancies emergence in the literature. *In order to identify functions that should be integrated, it is necessary at first to understand the role of each function and how exactly the integration of those functions will contribute the improvement of the overall business efficiency.*

4. TWO VIEWPOINTS OF INTEGRATION

It was already mentioned in the literature review section that integration can be viewed from two different points, namely as a specific state of the organization or as a mechanism which may provide with the achievement of that state. Both approaches are reasonable, but each requires to emphasize the following:

- first, while considering integration as a mechanism, it is vital to take notice of the facts that the mere implementation of an integration mechanism does not necessarily guarantee the

achievement of positive outcomes, and “the level of integration should correspond to the needs of the situations” (Kahn and Mentzer, 1996, p. 12). Moreover, any improvement of internal processes should be aligned with the organizational strategy and correspond to the adopted effectiveness measurement model (Ryńca, 2009, p. 105) According to these statements, *a priori analysis of the internal and external environment should be made so that managerial decisions take into account all the necessities and possibilities of integration;*

- second, achieved integration is typically not included in the analyses, and it remains unclear what performance benefits reflect the achieved state (Turkulainen and Ketokivi, 2012, p. 451). What is often missing in these analyses is an examination of whether integration is actually achieved (Gerwin and Barrowman, 2002). In other words, there is no distinct answer to the question “What actually has been improved with the achieved integration?” The researches usually consider some general efficiency indicators which are too far from what is being analyzed. "Simply examining the relationship between a firm's resources and capabilities and its overall performance can lead to misleading conclusions" (Ray et al, 2004, p. 24).

To resolve the situation it is necessary to establish clear criteria which, on the one hand, could let objectively evaluate possible mechanisms for functional integration, and on the other hand – determine indices, which would reflect the relationship between the integrated organization and its new level of particular outcomes. A base for such criteria establishment is the formulating of some precise questions, which should be answered by the organization's management before making any decisions towards functional integration. The first stage of the analysis aims to identify integration prerequisites and possible integration mechanisms. The second stage of the analysis must show the relationships between the achieved integration level and the relevant business results indicators.

5. THE ANALYTICAL APPROACH

5.1 Integration prerequisites. Analysis of integration mechanism

Taking into account the fact the functional integration requires significant costs and management effort, the main question, while analyzing integration necessity and possibilities, is: (1) *Does the environment really demand a business change by virtue of functional integration?* To answer the question managers should consider their organization strategic plans and assess

internal and external environment. Some common methods may be used in this case: SWOT-analysis, Michael Porter's five forces model, analysis of specialization level etc.

The next step is to determine the goal of integration, that is the management should answer the following questions:

(2) *What is the goal of integration?*

(3) *What exactly are we attempting to improve?*

(4) *What gains will the organization receive after the integration is achieved?*

The answers to these questions must not sound like "obtaining a competitive advantage", "cost reduction", "improved information exchange" etc., but must reflect some specific effectiveness indices. Depending on a situation under consideration there may be chosen some of the following criteria:

- reduced performance time for separate types of operations (order forming, payments etc.);
- employee quantity reduction in some specific departments;
- reduced documents processing time (reports preparation, invoice processing etc.);
- reduced quantity of documents (exactly which ones);
- reduced time for receiving and processing of information (stocks, incoming products, material procurement plans, sales plans etc.);
- increased productivity (specify categories of employees);
- reduced specific cost types (wages, transportation cost, maintenance cost etc.);
- reduced per unit cost;
- reduced timeframe of operational cycle;
- others.

Depending on business and product types this list may include also quality criteria, production elasticity, possibilities of innovation implementation.

The next step after the environment assessment and integration goal identification is to determine a set of functions that should be integrated. At this phase it is necessary to answer the following questions:

(5) *Does the situation require integration of all the organization functions or just certain ones?*

(6) *Exactly what functions should be integrated?*

(7) *Are these individual functions of only operational category or probably some administrative functions should complement the integration?*

(8) *What processes constitute each of the functions?*

(9) *How exactly will the functional integration help achieve the established goals?*

The result of answering these questions must be a distinct list of functions that management considers are to be integrated. After that, it is necessary to find out if these functions contain related activities. Existence of such activities can contribute the achievement of functional integration to a great extent. Type of relationships between function, i.e. managerial, consultative, transfer-of-control or supportive, should also be clarified. Understanding of the relationships type will help formulate transparent demands for integration mechanism and also perceive the way the integration will improve these relationships.

After the set of functions and their relationships types are determined, the next step is to identify integration tools (information, management or organization tools) and find possible integration mechanisms. This may be a creation of cross-functional teams or matrix organizational structure, cooperation and collaboration of managers of different departments, integration via specific IT applications etc. The mechanism or combination of mechanisms that fully matches the current situation should be chosen. The following indices may serve as the choice criteria: activation costs of a mechanism, volume of work that managers and their subordinates are currently responsible for, availability of employees with necessary specific knowledge etc. Probably the next questions should be answered as well:

(10) *What tools will be used for integration mechanism and what is the exact way a mechanism will contribute integration?*

(11) *What processes will take place?*

(12) *What obstacles may arise during the integration mechanism realization?*

(13) *Are the corporate culture and the organization's structure favourable for implementation of such an integration mechanism?*

(14) *Will managers have enough time to deal with this kind of mechanism?*

If the chosen mechanism is to a great extent based on IT, the necessity of new hardware and software purchase and their costs should be considered, as well as the potential need for employees special training in software usage.

At the final step of the first analytical stage it is vital to determine who will control the integration process and calculate the necessary costs. Additionally the following questions must be taken into consideration:

(15) Will the gains from integration justify the incurred costs?

(16) Should all the costs be incurred at once, or a phased spending is possible?

(17) How will the integration process be monitored and controlled?

(18) Who will be accountable for the integration achievement?

The result of performing of all the above mentioned analysis steps must be a clear integration plan. Afterwards the plan is to be put into life, corrected if necessary during its realization.

5.2 Analysis of the achieved integration state

At this analytical stage the employment of the decomposition method is relevant. According to this method the general picture of the achieved integration state should be analyzed at first. After that, a more detailed approach, with consideration of some specific indices, should be developed. The following questions may help create a general view of the situation:

(19) What gains has the organization obtained with the achieved level of functional integration?

(20) Do these gains correspond to those ones we tried to achieve?

(21) Are the incurred costs justified?

(22) Have new processes emerged? What is their usefulness?

(23) Have the old processes disappeared? Why were they useless, maybe they should be restored?

(24) Have the relationship types between functions changed?

(25) Has the managers' and employees' work volume changed due to the integration?

(26) Are the long-term strategies and goals maintained?

The evaluation of the detailed indices will contribute understanding of how exactly the problem situation was settled. The answering of next questions will help be more specific while evaluating the gains:

(27) What costs are reduced? (wages costs, transportation costs etc.)

(28) Has the productivity increased?(specify employee categories and tasks)

(29) *Has the quantity of employees changed? How is it changed? In what departments?*

(30) *Has the documents turnover changed? Is the quantity of documents increased or decreased? (specify kinds of documents e.g. invoices, payroll records etc.; calculate the percentage of the change).*

(31) *Has the processing time of some kinds of documents changed?(If it has, specify documents kinds).*

(32) *Has the working schedule of managers and employees changed? (If it has, specify the scope of that change, probably, there are new tasks to be done, exactly what kind of tasks, what is their fraction in the whole working schedule?).*

(33) *How has the information processing time changed? (specify the kinds of information).*

(34) *How has the task performing time changed? (specify those tasks, e.g. order receiving and processing, invoice payment, changing of production line settings etc.).*

The received information will show if the newly achieved state of functional integration meets the demands of the current business environment, as well as help analyze if the decisions taken were correct and efficient.

5.3 Summary

The above presented analytical approach is not comprehensive, but rather provides some essential framework to settle problems, which managers face trying to improve their organization's performance by virtue of functional integration. The list of questions should not be limited to those, presented in this paper. Depending on business type and situation under consideration, managers must determine specific criteria and indices to create qualitative and quantitative base for decision making. Table I presents in general the main stages of functional integration analysis.

It is vital to highlight that functional integration analysis must also cover ethical and psychological aspects, since they can unpredictably influence integration processes. Ethical problems may arise when for example a layoff decision is to be taken. Psychological problems may take place due to the fact that some middle and front managers will not be able to bear additional responsibilities and take decision to better realize integration initiatives of the top-management. If there is a potential for such influences upon integration, either positive or

negative, it is necessary to introduce new criteria and perform additional analysis for those situations.

Table 1: Stages of functional integration analysis

Analysis stages	Analytical steps at each stage	Questions
STAGE I		
IDENTIFICATION OF INTEGRATION PREREQUISITES,	identify if environmental conditions actually demand the establishment of functional integration	1
INTEGRATION GOALS AND	define the integration goals	2-4
INTEGRATION MECHANISMS	identify functions that should be integrated	5-9
	determine integration mechanism	10-14
	calculate costs and define duties and responsibilities	15-18
STAGE II		
ANALYSIS OF ACHIEVED INTEGRATION STATE	construct general picture and compare the achieved result to the planned one	19-26
	define essential criteria and indices and go to details	27-34
	make conclusions and correct situation if necessary	

Source: developed by author

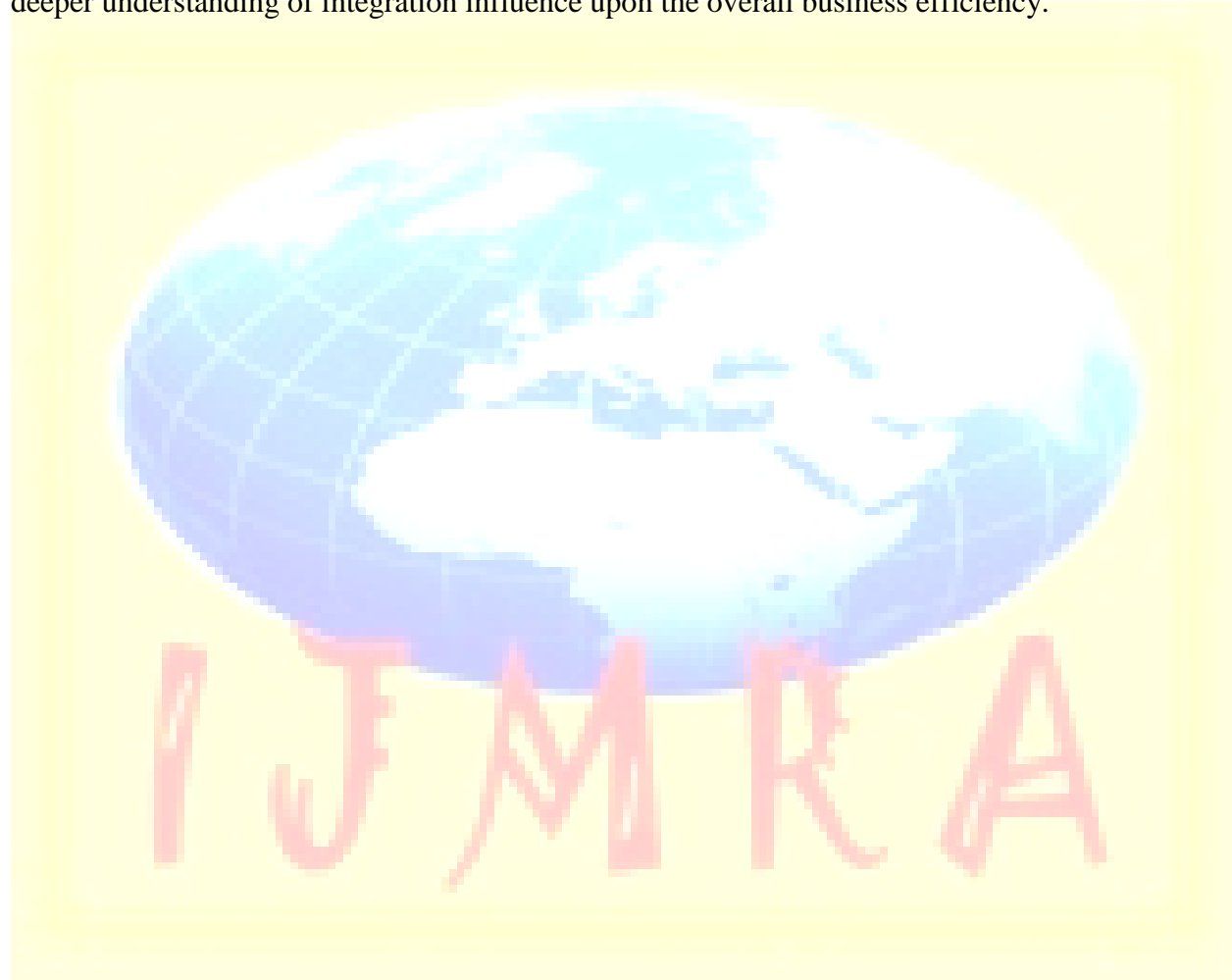
6. CONCLUSIONS AND FURTHER RESEARCH PROSPECTS

Organization that achieved a high level of integration enjoys the "best of both worlds" in that while it is integrated, it simultaneously reaps in the benefits of functional differentiation and specialization (Barki and Pinsonneault, 2005). Although the effect of integration on performance can be hypothesized to be positive in several dimensions of performance, the mechanism is not necessarily the same in all performance dimensions (Turkulainen and Ketokivi, 2012, p. 451). Careful attention also must be paid to the kind of performance that is produced (Bendoly et al., 2007), and to the costs, incurred to achieve that performance.

The analytical approach to settle problems, related to the functional integration, provides a base which enables management to critically assess possibilities and necessities of integration processes realization. The proposed technique is quite general and must be worked out in detail for specific business conditions and operational environment. Yet the overall logic of decisions

taking sequence may remain unchanged. The ethical and psychological aspects of integration processes fulfillment should be considered as well.

The further research may be conducted more in practical direction, developing and defining specific criteria and indices for different kinds of businesses – for those which deal with manufacturing and for those, which deal with services. It is possible also that such a critical approach to functional integration will help build new integration mechanisms and provide deeper understanding of integration influence upon the overall business efficiency.



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