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**ESCF Operations Practices:
Insights from Science**

**Process Harmonization for
Business Performance**

Process Harmonization for Business Performance

Determining the right balance between variety and standardization based on contextual factors

Concise summary of this best practice

Large companies with multiple locations face the problem “to what extent to standardize processes” and “how much variety to allow”. Process harmonization aims to find the right balance, leading to efficient and effective business processes. This research identifies which contextual factors influence what harmonization actions, and how these again influence the performance of companies. Therefore, this best practice delivers a harmonization model providing practical guidelines that companies can use to structure their business process harmonization efforts.

Key Terms

Process standardization, harmonization, contextual factors.

Relevant for

Medium and large companies with multiple sites and locations (such as Philips, Nedtrain, DAF, Shell, Dekra).

What is the right level of standardization?

Business process standardization aims to make processes uniform when they serve similar objectives in an organization. The intention of business process standardization is to ensure that if an organization performs the same activity in different places, it does so in the same way. There are many claimed benefits to business process standardization, such as increased efficiency of executing processes and improved collaboration. These benefits have been reported both between internal organizational units, and between organization and its business partners. There also exists empirical evidence that business process standardization decreases the throughput time of a process, reduces cost and improves quality and control.

Therefore, standardization is regarded as a means to save costs and simplify business processes in many large companies. However, standardization of business processes can be a double-edged sword and little is known about the right level of uniformity. Although it can have many benefits if used properly, it can be equally harmful when poorly designed or misapplied. One of the challenges for large organizations, especially the ones that have many divisions and produce different products for different markets, is to understand when and where to standardize processes, structures, and tools.

While business process standardization has clear benefits, there may be good reasons to maintain some variability between business processes. Major reasons for having variations of a process include: requiring the ability to deal differently with different types of customers and different cultures, and leaving different business units with reasonable autonomy to avoid micro-management. Also, research has shown that some level of variability cannot be avoided. Hence, when standardizing processes, a balance must be struck between the benefits of making processes uniform on the one hand and the benefits of allowing variability on the other. To stress this trade-off, the term 'harmonization' is used instead of standardization to emphasize the need for a balance between uniformity and variability, as opposed to standardization.

Although the benefits of process harmonization have been studied in detail, not much is known about the factors that drive the trade-off between uniformity and variability. This means that many large companies are potentially trying to standardize processes beyond a point where it is beneficial for them. Alternatively, companies might not enjoy the benefits of standardization for processes that would be more efficient or effective when standardized.

To investigate the factors that determine the right level of harmonization, Eindhoven University of Technology started a research project, executed by Ph.D. candidate Heidi Romero (Romero, 2014), supervised by Remco Dijkman, Paul Grefen and Arjan van Weele. Her research project focused on process harmonization and how to set the right boundaries to the degree of the variation of business processes.

Contextual factors, harmonization and performance

The aim of the study was to understand the influence of contextual factors on process harmonization measures, and how these influence the performance of a business. This is visualized in Figure 1. It is important to understand contextual factors, as they shape the way in which process harmonization takes place in an organization, and they define the extent to which a set of business processes can be harmonized.



figure 1

Conceptual Model

Step 1: External, Internal and Immediate Factors

To get an overview of the factors that drive harmonization, firstly the literature on process standardization and harmonization was studied. The literature study resulted in a number of factors that might drive process harmonization:

- **External:** Factors that characterize the business network and the macro-economic context in which the organization operates and that are beyond the control of an individual organization, such as legal requirements for specific industries.
- **Internal:** Factors that are part of the internal environment of the organization, i.e. organizational structure and the number of locations.
- **Immediate:** Factors that are internal and directly related to the process under study, such as the process type.

Based on the literature survey, a model was created that explains the concepts in more detail: elements of process harmonization, factors that drive the extent to which processes can be harmonized, and performance benefits that can be gained through harmonization. Furthermore, the model shows relations that exist between the model elements, and which therefore have been studied in more detail. The model is in Figure 2.

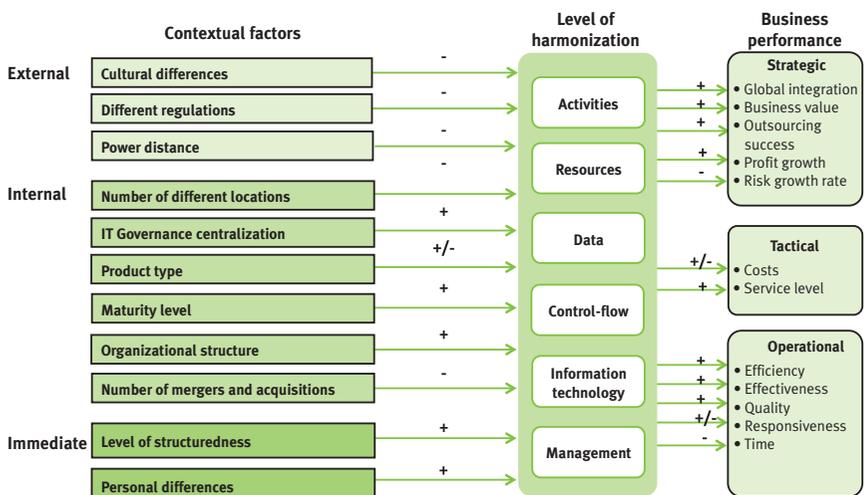


figure 2

The relation between contextual factors, harmonization and performance

External

Three **external** factors have been identified that influence the extent of harmonization. Firstly, when there are large differences between cultures, then knowledge transfer between these cultures will also be more difficult. Similarly, when regulations strongly differ between the company's locations, harmonization will be more difficult as multiple varieties of the same process can be required to deal with the local regulations. Lastly, the power distance indicates the legal and financial (in)dependence where a low power distance makes harmonization more feasible.

Internal

Six **internal** factors have been identified that influence harmonization. Firstly, the number of different locations makes harmonization more difficult as it takes more effort in total to coordinate the local entities. Secondly, the extent to which Information Technology (IT) governance has been centralized has an effect on process harmonization, as central IT departments will typically drive harmonization efforts as part of company-wide system implementations. Thirdly, when a company has a large number of product types, potentially even customized for the local market, the potential for harmonization will be influenced. Fourthly, the maturity of a company's business processes has a positive influence on the level of harmonization that can be achieved. Fifthly, an organizational structure based on a hierarchical network with both vertical and horizontal relationships facilitates the centralization of decisions by headquarters. Lastly, the implementation of several managerial practices through mergers and acquisitions increases the number of process variants that coexists. These variants differ with respect to their performance such as efficiency, quality and cycle time. The harmonization of these variants consolidates processing volumes and allows the organization to exploit economies of scale.

Immediate

Two **immediate** factors have been identified. Firstly, the structuredness of processes has an impact on harmonization, as non-routine processes cannot easily be standardized, such as creative processes, or processes that need to comply to local legal requirements. Secondly, the potential of a process to be successfully standardized also depends on personal differences such as level of experience and knowledge of the people involved in the process. Processes have less potential to be successfully standardized when requiring employees with medium or high work experience and tacit knowledge. Additionally, people are used to work in a specific way and may not be willing to change, while some others see the sharing of knowledge about how a process works as a loss of control and power. If these differences are significant between people with the same role, they increase business processes variation.

Step 2: Measures of harmonization

Once the contextual factors influencing harmonization had been identified, the next step was to determine what measures can be used to quantify the level of harmonization of a business process in an organization. A workshop was organized consisting of academics and practitioners to identify the relevant aspects for process harmonization. Subsequently, a survey was executed to identify how much the set of measures actually reflects different aspects of process harmonization.

The fieldwork led to the following set of harmonization aspects: Data, Activities, Resources and Information Technology. Seven measures were identified that assess the four aspects. For Data, it is the number of different documents used as input for the same process and the number of different output reports. For Activities it is the percentage of common activities in the process. For Resources it is the percentage of common roles in the process, and the number of different roles executing the same activity. For Information Technology it is the number of different software suppliers and the budget spent on software applications.

Step 3: The Relationship between Factors and Harmonization

Once the contextual factors and the aspects of harmonization had been identified, the research proceeded with the question how the contextual factors influenced the level of harmonization, as displayed in Figure 3.

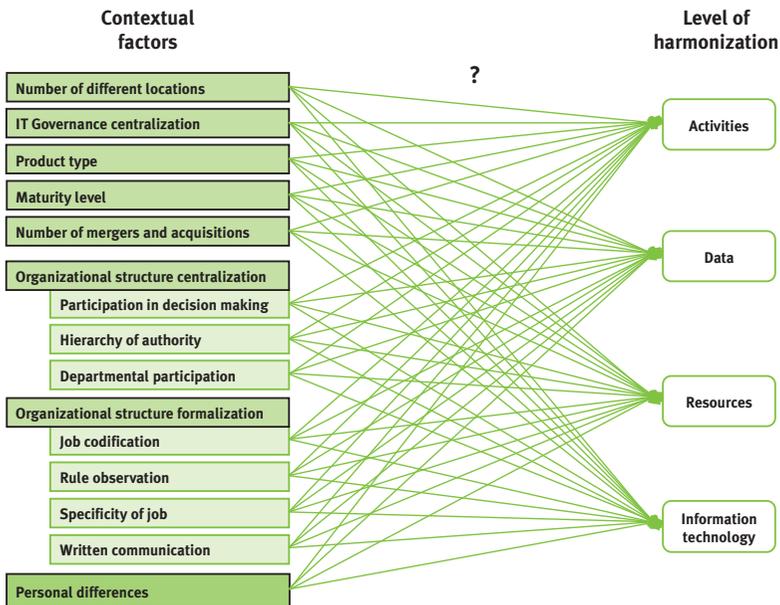


figure 3

Studying the relationship between contextual factors and level of harmonization

This part of the research was addressed by conducting case studies at six members of the European Supply Chain Forum. In the case studies, interviews were held with stakeholders and documentation was studied. The outcomes of the case studies support the postulated relations between the contextual factors and harmonization, as expected from literature. However, the importance of contextual factors differs per process type, being more significant for more standard processes than less standard ones. Additionally, it was found that the level of formalization of the organizational structure has a significant role when

harmonization initiatives are conducted in an organization. Most of the patterns in the data were related to the harmonization aspects Activities and IT. The following table summarizes the findings from the research, which have been formulated in a number of propositions per harmonization aspect.

Table 1: Propositions on the relation between contextual factors and harmonization as outcome of the research

Aspect	Finding
Product type	<p>PROD1: The harmonization of activities is high when different roles are assigned to manage products with different strategic focus in the organization.</p> <p>PROD2: The harmonization of resources is high when different roles are assigned to manage products with different strategic focus in the organization.</p> <p>PROD3: The harmonization of IT is high when different roles are assigned to manage products with different strategic focus in the organization.</p>
Maturity level	MAT1: For organizations with a high level of process maturity, the harmonization of resources is high.
Mergers and acquisitions	MER1: Organizations with a higher number of mergers and acquisitions are less harmonized in terms of their IT systems.
Organizational Structure Centralization	<p>ORGC1: The harmonization of IT is high in organizations with a centralized organizational structure.</p> <p>ORGC2: For high levels of participation in decision-making, the harmonization of IT is high.</p>
Organizational Structure Formalization	<p>ORGF1: The level of process harmonization is high in organizations with a high level of organizational structure formalization.</p> <p>ORGF2: The harmonization of resources is high in organizations with a high level of job codification.</p> <p>ORGF3: The harmonization of activities is high in organizations with a high level of job specificity.</p> <p>ORGF4: The harmonization of activities is high when the level of written communication is high.</p> <p>ORGF5: The harmonization of data is high when the level of written communication is high.</p>

Managerial Implication

The presented findings offer a basis for business managers to better understand which contextual factors are relevant when conducting harmonization projects and the specific aspects of process harmonization that they influence. Also, the way in which managers structure their organization is critical to guarantee the expected gains of process harmonization. For example, when new investments in IT drive harmonization initiatives, it is recommended to centralize organizational decision-making. However, when a harmonization initiative is mainly process driven, then the most significant aspect to consider is the organizational structure formalization. In this case, the investments should focus on defining clear procedures in which the activities to be performed in each process are clearly specified and codified. Furthermore, investments in resources to build and maintain such procedures have to be considered in the evaluation of the trade-off.

Application to practice

The harmonization model has been applied to practice in a Master's thesis project (Gils, 2013) that has been carried out in an organization that supplies certification for auditing, inspection and certification of products, medical devices, management systems and personnel. Based on the conceptual harmonization framework, factors influencing harmonization model were identified at the organization. The factors that have a high influence the level of harmonization of the processes certification include legal regulations, IT-related factors, different services, personal differences and process type. However, the organization goals require that some factors exist. The factors that undesirably influence the level of harmonization in a negative way formed the areas of focus, which were IT-related factors and process type. These areas of focus resulted in a better understanding of the direction for the redesign of the business processes.

The case study provided the company with suggestions for improvements that increased the level of harmonization. To conclude, this best practice has delivered a model that can be used to approach a very relevant problem for large organizations, to deliver the benefits that are required from harmonization efforts.

Reference

- Gils, S. van. (2013). A stepwise approach for harmonization-based redesign of business processes; a case study at DEKRA Certification B.V. M.Sc. Thesis Eindhoven University of Technology.
- Romero, H.L. (2014). *The Role of Contextual Factors in Process Harmonization*. Ph.D. Thesis Eindhoven University of Technology.

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Editorial

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