# Introducing Competencies in Organizations

Henk Plessius
HU University of Applied Sciences Utrecht, NL
henk.plessius@hu.nl

Anand Sheombar
HU University of Applied Sciences Utrecht, NL
anand.sheombar@hu.nl

Pascal Ravesteijn
HU University of Applied Sciences Utrecht, NL
pascal.ravesteijn@hu.nl

## ABSTRACT

*In the fast-changing world of IT, relevant competencies are getting more important as these determine how successful you can function in practice. As a consequence, organizations are introducing competency frameworks like the European e-Competence Framework (e-CF, 2014) in their IT departments. However, for many organizations it is unclear what good practices and pitfalls are when introducing such a framework. In this paper this topic is studied by analysing 13 interviews with IT- and HR-managers who are (or recently have been) involved in a transition towards the use of competencies with their IT-staff.*

**Keywords**: IT competencies, competency framework, e-CF, personal development.

## INTRODUCTION

The world of IT is constantly changing (Benamati and Lederer, 2001; Rong and Grover, 2009; Korunka and Kubicek, 2017). A good illustration of this can be found by comparing the 'top 10 IT-trends' from various years: not many trends live long enough to reach the top 10 for a second year; see for an example Gartner's top 10 in 2016 and 2017 (Gartner, 2016; Gartner, 2017). Together with these changing trends and hypes, new roles in IT appear and disappear (Luftman et al., 2015; Whitmore, Agarwal & Da Xu, 2015; Stein, Galliers and Whitley, 2016). As a consequence, for IT professionals it has become more important how they perform than which position they hold. The shift from the classical 'function and tasks profile' to a profile based on competencies and roles in IT jobs has been described by Bouras, Zainal and Abdulwahad (2016). This change has been one of the main drivers in defining a set of IT competencies applicable in the European economic zone: the European e-competence Framework, e-CF (2014). The e-CF is set as standard by the European Committee for Standardization (CEN, 2016) and as a consequence it has to be implemented by all EU member states.

However, many organizations struggle with the transition towards the use of professional competencies (De Vos, De Hauw, and Willemse, 2015; Sangi, 2016). Based on the observations as described in literature and our own experiences, we decided to research the transition towards competency-based IT-profiles in organizations. For this study, the following research question is defined: *What are good practices and pitfalls in the transition towards the use of IT-competency frameworks in organizations?*

An overview of good practices and pitfalls contributes to the scientific knowledge base by making it transparent which factors are involved in such a transition, in this way providing a baseline to research these transitions in a uniform way. In practice, organizations may benefit from the results by identifying and avoiding pitfalls beforehand and prepare a business case for their transition.

This paper is organized as follows: in the next two sections, we discuss related literature followed by an overview of the research method. Next, we give an overview of the data collection process and subsequently the analyses of the interviews. In the final sections, we focus on best practices and pitfalls, summarize our main conclusions and give suggestions for further research.

# THEORETICAL BACKGROUND

## COMPETENCIES AND COMPETENCY FRAMEWORKS

Competencies (or competences) are developed by integrating learning experiences (including knowledge, skills and attitude aspects) in real situations into (repeatable) behaviour. As the concept of competency is quite abstract (it does not relate to something tangible in the real world), no uniform definition of the term exists (Lundqvist, Baker and Williams, 2011). Sometimes a distinction between knowledge and skills versus behavioural competencies is made (see for example ITCM, 2012), but the most common definition of competency is that of 'a combination of knowledge, skills and attitudes or personal abilities'. This is illustrated in the e-CF (2014), where a competency is defined as '*a demonstrated ability to apply knowledge, skills and attitudes for achieving observable results*'. As this definition does not explicitly address the context in which a competency is applicable, we prefer the definition of Dochy and Nickmans (2005): '*a competency is a combination of knowledge, skills and attitude that results in successful behaviour in a specific context*'. The importance of behavioural and context specific aspects of competencies has also been discussed by Ravesteijn, Bosman and Mens (2015). However, for this research it is not necessary to discuss the differences between various definitions comprehensively as our focus is on the transition from work-related tasks towards human-oriented competencies.

A coherent set of competencies for a specific context can be used to construct a competency framework. A competency framework offers '*generic and theoretical solutions for comparing and harmonizing competencies*' (Lundqvist, Baker and Williams, 2011). Most frameworks are restricted to some domain, e.g. IT or HRM. The aforementioned e-CF is an example of a competency framework for the IT domain, but other classifications for this domain exist as well (Plessius and Ravesteijn, 2016).

A competency framework is essentially a classification of competencies along one or more axes or dimensions (Markowitsch and Plaimauer, 2009). Competencies in a competency framework are at least ordered along a domain axis: a (semi-)structured list of competencies, where each competency-class may be subdivided further (Markowitsch and Plaimauer, 2009). Quite often we see a second axis with proficiency levels. The e-CF for example uses five proficiency levels ranging from associate to principal (e-CF, 2014). Examples of other classification dimensions are described by Plessius and Ravesteijn (2016).

Apart from assessing the potential of individuals, competency frameworks can be used to outline the potential of the organization as a whole (Feeny and Willcocks, 1998; Willcocks, Feeny and Olson, 2006), to which we will refer in this paper as (organizational) capabilities. In particular, by confronting current

organizational and IT capabilities with organizational and IT capabilities needed for the future, responsible decisions can be made regarding the alignment of IT capabilities with business needs (Rabaey, Tromp and Vandenborre, 2006).

Many organizations use a set of soft skills in their HRM-processes (like communication, learning ability, leadership, etcetera) that are deemed necessary for a skilful exertion of tasks. These soft skills rely strongly upon the 'big five' personality dimensions (Goldberg, 1990) and are often generic for the organization as a whole. In many organizations these soft skills are complemented with a (in most cases quite abstract) description of tasks and responsibilities and together these define the functions in the organization. Usually, a specification of necessary knowledge is only given in terms of necessary education and/or certificates. A competency framework provides a means to be more specific in terms of knowledge, skills and attitudes without becoming too specific. A job function can be defined by a combination of competencies on certain proficiency levels. For example, within the e-CF community, many IT-functions are 'pre-defined' in this way (CEN, 2012).
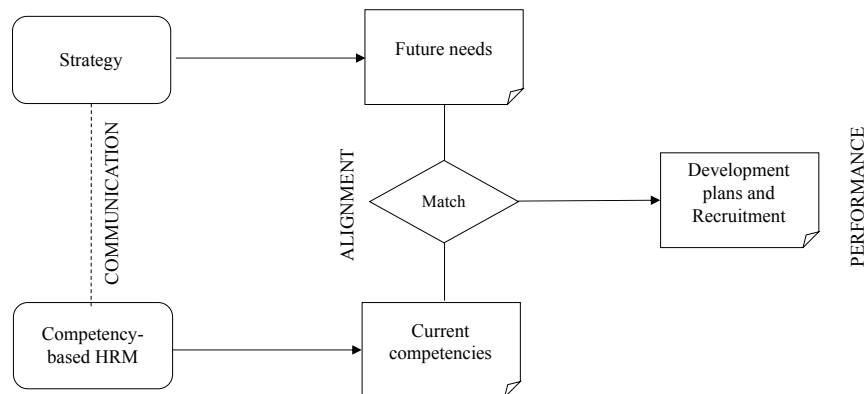
## BENEFITS OF COMPETENCIES

In the literature on competencies many benefits of working with competencies are mentioned. Examples of such benefits are improved talent planning, improved operational efficiency and creating a common language (Strebler, 1997; Eilström and Kock, 2008; Love et al., 2014). The benefits of using competencies in operations are summarized by Markus et al. (2005) in four categories that are used in this research as well:

- **Recruitment***: by focusing on competencies the recruitment process becomes more transparent. When processes are outsourced, competencies can be used in the selection of the most appropriate provider.
- **Development**: by matching course competencies with the (desired) competencies of an employee, a development program can be defined.
- **Performance**: From the strategy of the organization, desired future competencies can be inferred and from there, personal development programs can be implemented.
- **Communication**: A competency framework offers a common language for strategic as well as HRM issues.

These benefits are mutually related: from the vision and strategy of an organization the competencies that are needed in the future may be inferred. By subsequently comparing these with the current competencies of the employees, personal development plans can be defined and if necessary, recruitment programs started. In figure 1 we have depicted these interdependencies and the way they can be used to align the future needs of an organization with its strategy.

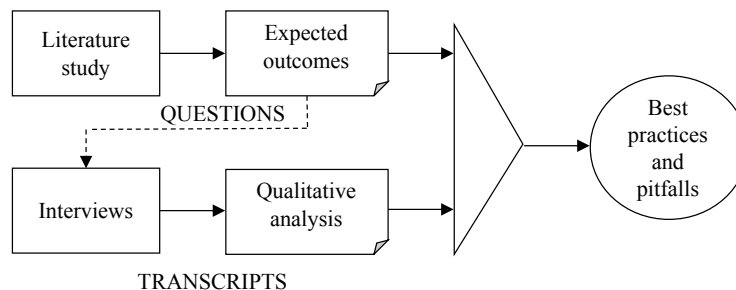**Figure 1: Interdependencies between benefits.**



According to literature (Markus et al., 2005; Eilström and Kock, 2008) by far the most important reason for organizations to implement competencies and competency frameworks is the expectation of a better performance and competitive advantage.

## RESEARCH METHOD

In this study, we are looking for good practices and pitfalls as experienced by organizations before, during and after the transition towards the use of competency frameworks, particularly for their IT department. As we are interested in experiences, the most appropriate research methodology is a qualitative, descriptive research, using case studies as our research approach (Runeson and Host, 2009). To be able to focus on the transition, we decided to restrict our cases to organizations that recently had introduced competencies for their IT-staff.

Data has been collected by performing interviews with IT- and HRM-managers. To support the interviews, we first conducted a literature study towards reported benefits and pitfalls on the use of competencies and competency frameworks in organizations. From the literature study, we derived expected outcomes that were used as input to developing questions for our interviews. All interviews were recorded and subsequently transcripts were made of the interviews. These transcripts have been thematically analysed using the approach as described by Braun and Clarke (2006) using Nvivo, version 10 (see http://www.qsrinternational.com). This is a much-used form of qualitative analysis for distilling patterns in interview data. Figure 2 shows our overall research method.

**Figure 2: Research method.**
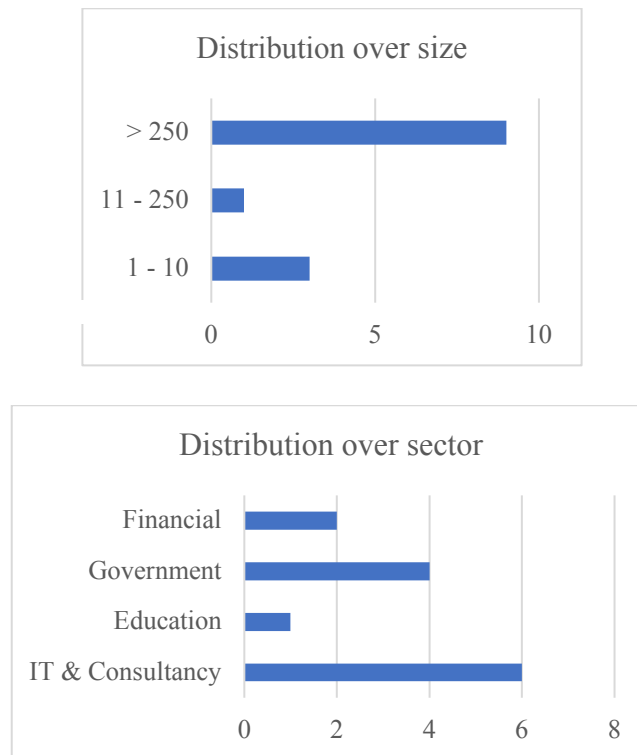


## DATA COLLECTION

As stated, we inferred a set of questions from literature, in line with our research question. The survey questions can be categorized in four themes:

- **Competencies and competency frameworks**: How are competencies understood by the organization? Is the organization using a competency framework?
- **Implementation**: How are competencies introduced and implemented? What has been learned in the process?
- **Talent management**: How are competencies used in the organization, both in recruitment and in development of staff?
- **Perceptions**: What are the experiences of employees? Has the transition (process) been evaluated?

During the first months of 2017 we interviewed IT and HRM-managers in 13 organizations. From each interview a short summary was made with the most important findings, these were sent back to the interviewees for approval and - if necessary - additional comments.

Figure 3 shows the distribution by size (number of employees) and sector. By far the most popular competency framework used by the organizations that were interviewed was the e-CF (2014), which is not surprising as this framework is designated as European standard.

**Figure 3: Distribution of interviews.**



The number of organizations that have participated in this study is quite modest. However, as figure 3 shows, there is a good distribution over sectors and size and we think that conclusions may be generalized towards other organizations. We will discuss this issue in more detail in the final section of this paper.

## ANALYSIS

### PRELIMINARY RESULTS

Based on the summaries of the interviews (and additional feedback) we found that the main reasons to start using competencies and competency frameworks, are:
- Organization-wide soft-skills descriptions are in use to measure and develop attitude aspects; these are often related to as competencies but they have no direct relation to the job context.
- Technical knowledge and skills in job descriptions are quite often outdated or very general and need to be updated.

- It is difficult to align future needs with the capabilities of the current workforce and competencies might help to solve this.
- There is limited insight in the (IT) abilities of employees.

As the main benefits of the introduction of competencies were mentioned:
- The introduction of a 'common language' in the organization.
- The expectation that better tailored development programs based on competency development would be followed by an increase in performance.

To reach these benefits, it is deemed vital by our respondents that training programs are described not only in terms of knowledge and skills, but in context specific competencies as well (including attitude), preferably in line with the e-CF as this competency framework is declared a standard by the European Committee for Standardization (CEN, 2016).

### THEMATIC ANALYSIS

In order to recognize recurring patterns in the interviews and to refine our model, we carried out a thematic analysis (Braun and Clarke, 2006). As a start for the analysis we used the four categories as found in the literature (Markus et al., 2005): recruitment, personal development, performance management and communication. The full thematic analysis resulted in seven themes that regularly recurred in our interviews. An overview of these themes can be found in figure 4. As the interviews were held in Dutch, we have translated the statements of interviewees as used below in English as literally as possible and to the best of our knowledge.

1. **Organizational goals & culture:** This theme includes the organizational culture aspects and goals that the organization has in the long run, in terms of process and performance improvement. The coded and analyzed data refer to rapid changes in IT, the growth of the organization, adoption of innovation talent management, etcetera. An example is the following quotation: "*The IT technology changes rapidly, robotics…such a speed of change. This environment requires us to develop*".
2. **Framework selection:** The process of selecting an IT competency framework. All coded data referring to how the competency framework that is used has been chosen, are collected in this theme. Typical considerations are a widely used standard, an up-to-date and maintained framework, availability of assessments and quite often the choice was also pragmatic (e-CF as the European standard) or opportunistic (via peers or word of mouth). An example quotation is: "*…we have to look to the technical skills as well, because soft skills give one part and the technical skills the other part. So,*

*we looked at the possibilities which led us to the e-CF as this is a framework that is implementation-ready and being used in practice*".

3. **Adoption & implementation:** Initial adoption and use of a competency framework and experiences gathered. This is a theme with seven categories. The categories considered here are motivation, the adoption process, output aspects, partners involved, drivers, advantages and disadvantages.

3.1 **Motivation***:* many organizations are motivated by technological trends, e.g. "*The developments toward cloud engineering. Yes, what is it really and what kind of people do we need? It's another way of working, multidisciplinary. Everybody does not do only 'their piece', but it is actually about doing what has to be done at the moment. That kind of thing.*" Other motivational topics mentioned are commercial (attracting customers), outdated job descriptions, talent management and a pending reorganization.

3.2 **Adoption process***:* Important coded data here concerns trust building ("*Also in agreement with a works council and management to make sure that everyone has the correct picture of: 'Why do we do this?' And, no suspicious thinking like: 'Nice to say this, but eventually it will be used against us.' So, trust was a very important goal to achieve before you could start*"), gradual deployment, monitoring of progress and: people are reluctant at the start and see the benefits later.

3.3 **Output aspects***:* in this category, topics like baseline measurement, pilot as a learning trajectory, etcetera are collected. An example: "*So we actually do the baseline measurement now and do the next measurement in one year and only then we know… We can only then evaluate… Okay, we have made investments and we identify progress on these areas we invested in, but we are not there yet.*"

3.4 **Partners involved**: for some organizations, it was important to align their competencies to an industry standard. Many organizations also used an external partner to implement a competency framework. Noteworthy is the role that various interviewees awarded to HRM: supportive, not leading. "*HR delegates these type of things to the business units and takes a coaching role.*"

3.5 **Drivers***:* from the interviews, various drivers were identified. Examples are: e-CF is free, experience with other generic competency frameworks facilitates the transition and the recognition of the proliferation of IT to jobs traditionally not associated with IT: "*I expect that more and more professions will get an IT component. Let me give an example: an acquaintance of mine is a heart surgeon. He has to go to The United States every time to follow IT courses. Otherwise he will not be able to control that surgery device. That's the effect of robotization. (….) This also happens with*

*the average farmer. It's in all professions. Also, with financial institutions…".*

3.6 **Advantages***:* expected advantages that were mentioned often are that competencies can be useful for defining new IT functions: "*Q: When we return to the specific quality in your projects. And particularly the competencies needed for a cloud engineer as in that context e-CF is used in the pilots, if I am right. Was this useful? A: That was useful indeed, yes. It was recognizable to the cloud engineers.*"

Other expected advantages are professionalization of the organization, the facilitation of correct training, overview of available competencies and the applicability in resumes and curricula vitae.

3.7 **Disadvantages**: possible disadvantages mentioned are that change creates friction, (too) early adaption may hamper progress, competencies are quite abstract, lack of incorporation of soft skills, the absence of technologies in e-CF and the cost involved to make existing information systems compliant.
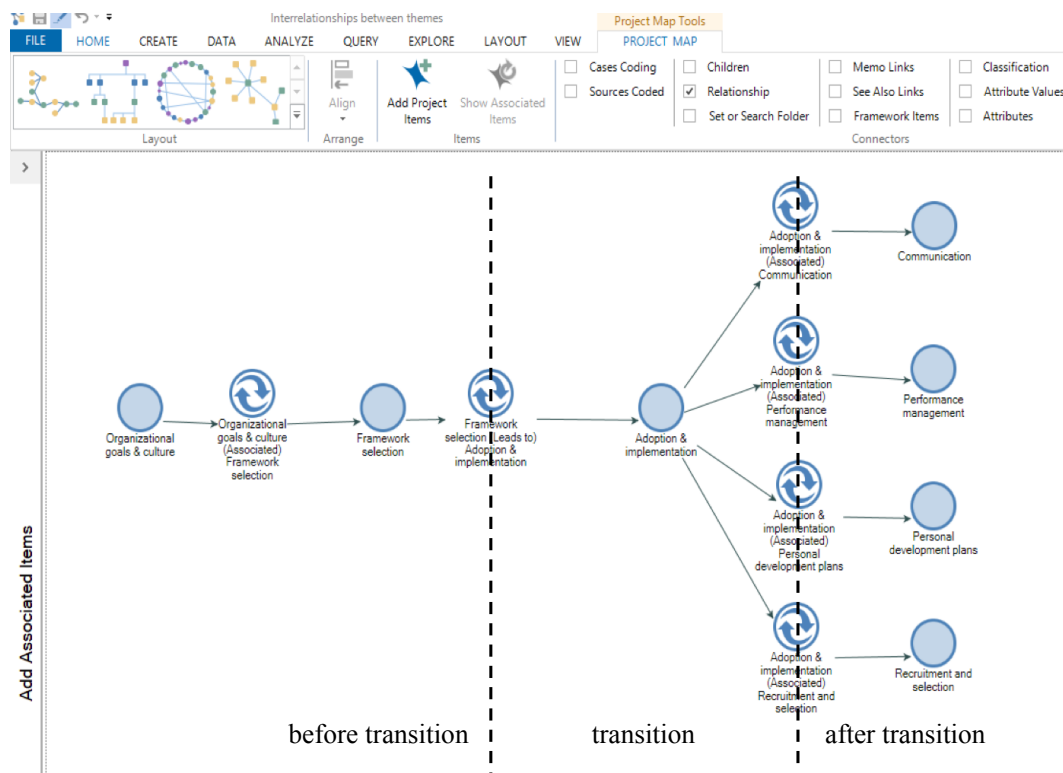
4. **Communication:** A competency framework is also a common language, a framework that enables dialogue on strategic and HR matters. A recurring topic in most interviews was the improvement of communication. A competency framework creates a common language, not only among the IT professionals but with management and HRM as well. "*You must first have a version in which everyone agrees on as many lines as possible and then you can start fine-tuning it, but you have to start with something. […] And maybe even disagree, because that means people are talking about it, people are using it, using parts of it*".

5. **Performance management**: Because of better coordination between the (future) needs of the organization and the competencies of employees, it is easier for employees to articulate a path (with their managers) for further development. In some organizations a movement from a reactive attitude towards a pro-active attitude is observed: "*At the core, they [Ed.: the employees] were reactive. They must now be active and they were always reactive and reactivity has always been easier, you know…. Now they have to expose themselves.*" Better team spirit is mentioned, together with the beginning of a strategic dialogue between management and IT staff.

6. **Personal development plans:** by taking competencies and personal development plans as a starting point, better coordination can be achieved with education and training options. In this way, employees are more motivated to follow courses and the training budget is better utilized. This starts with an individual and person-oriented snapshot of the actual competencies, called a selfie in one of our interviews: "*We have had a kick-off meeting. There all the profiles were presented. We told the people: Have*

*a go, start with it, we call it selfie. Pick up a profile, what you have now, or what you want to do in the future, and discuss this with your management consultants, with your colleagues to understand pros and cons and how to achieve*".

7. **Recruitment and selection**: due to the focus on the required competencies, recruiting new staff, both internally and externally, can be more effective and transparent: "*You can do these tasks at any other place. So, as an employer, we have to make it great, provide future*". Moreover, when outsourcing, the competencies may facilitate finding the most suitable service provider. For some organizations, assessment of competencies became part of their recruitment process.

The identified themes are part of a transition process during which a competency framework is selected (theme 1 and 2), implemented and adopted by an organization (theme 3), after which benefits can be achieved (theme 4 through 7). This is depicted in figure 4.

**Figure 4: Interrelationships between themes.**

# BEST PRACTICES AND PITFALLS

In the interviews, various best practices and pitfalls were mentioned. Based on the thematic analysis, we decided to structure these in accordance with the main structure of the themes: before, during and after transition. We end this section with a corollary in which the various findings are categorized in the seven themes from figure 4.

## BEFORE TRANSITION (THEMES 1 AND 2)

An organization that considers to implement a competency framework, will have to decide whether in the future the framework will be used in defining all roles in the organization or, alternatively, the framework will be applied in a part of the organization only (like the IT department). In the latter case, it may be preferable to link the framework in some way to existing functions and soft skills. In this research, adoption of one framework for the entire organization was found only within organizations in the IT industry (e.g. IT consultancy); in other sectors a hybrid system was chosen in order to stay aligned with the rest of the organization. Introducing a competency framework can give a boost to the development of the staff and therefor management should be prepared to steer this development, bringing it in line with future needs. Here, interviewees stressed the importance of a clear strategy and vision.

All organizations that participated in this study preferred to use an existing standardized framework, such as the e-CF. It was stressed by the participating organizations that the chosen framework always needs to be adapted (tailored) to the organization. These adaptations may range from making a selection of the competencies included in the framework (stated by all SMEs interviewed) to redefining existing competencies and extending the framework with competencies not (yet) included in the framework (as found in some governmental organizations). *"… An employee may be very talented, but when he is very stressed, you have to know, you have to act. Someone who is very communicative can be deployed in more situations than someone who tends towards the autistic. These things are important to know, they make the difference. E-CF does not address these things, …"*.

It should be noted however that adapting a framework can cause problems as all adaptations have to be reviewed when a new version of the chosen framework is introduced; e.g. one of the interviewed organizations is already in the process of developing a second version of their additions to the e-CF framework.

Finally, communication to employees on why competencies are introduced, is very important as the impact on jobs may be hefty and a lot of agitation among

employees may be the result. Our interviewees stressed the importance of clearly communicating the main reasons for using the chosen competencies and framework. In this study, the most important goals mentioned for introducing competencies are the need to anticipate on rapid changes in IT and to make it easier to adopt innovation.

## TRANSITION (THEME 3)

"*Do you know what does play? Change also causes some resistance. I think that's a very human response. There's a new system in place and then people need time to getting used to it*". In order to overcome resistance and build trust, it is important to take some time to realise the transition. According to the interviewees three to six months is a reasonable time to get used to the new terminology and review mechanisms. Employees may consider the description of competencies rather abstract and need time to develop a concrete interpretation of the competencies, in line with their daily work. In this period, it is important that employees have regular meetings with their manager in order to get a good feel of expectations and to be able to prepare a development plan, building on their current capabilities and in line with the future needs of the organization.

Several organizations interviewed in this research started with a pilot in a part of their IT-organization: "*You can start [deployment] at the IT department first because they recognize e-CF*". The pilot served as a learning trajectory and set a baseline measurement. Furthermore, the pilot created ambassadors for the roll-out in other parts of the IT organization.

An issue mentioned by nearly all interviewees is the need to specify the knowledge part of a competency. A competency like 'application development' may guarantee that someone is familiar with the application development process and has experience in the field, but it gives no clue with regard to the programming language that is used. In these cases, it can be useful to complement the competency with a knowledge attribute; e.g. 'Java application developer'.

Finally, an important finding from the interviews is that during the transition process leadership must come from the (IT-)managers, but support from HRM is also imperative: "*HR delegates these type of things to the business units and takes a coaching role*".

## AFTER THE TRANSITION (THEMES 4 THROUGH 7)

Introduction of a competency-based way of working may give a boost to the organization. According to the organizations participating in this research, employees tend to take more initiative in their work and in their personal development. "*They must now be active and they were always reactive*". For

managers, it becomes feasible to align competencies with the needs of the organization, thereby improving the overall performance. However, in all organizations interviewed, it was not possible to quantify an increase in performance as no baseline measurement was available. In all organizations participating in this study, the introduction of competencies and a competency framework has been started on qualitative grounds only.

Most participating organizations found that a consequence of the use of working with competencies is that the organization itself becomes more attractive to employees (both current employees and possible future employees) as competencies are a more universal way of expressing capabilities for employees.

A challenge mentioned in literature (Markus et al., 2005) is the measurability of competencies. This is also recognized in our interviews. As one participant stated: "*Reviewing the performance and capabilities of employees is not an exact science*". Managing expectations is something to keep in mind according to our interviewees. For example, some employees, after having acquired the competencies needed for a specific function, expected to be promoted to that function automatically.

Working with competencies does not automatically imply that an organization is innovative. Some organizations had implemented a special team to pay attention to the developments in IT and research the possibilities of new IT. By their nature, most of these developments are not implemented in the competency frameworks that are available.

Finally, quite regularly it was mentioned that communication inside and outside the organization had become more effective as the competency framework offers a common language in which both work and results can be discussed: "*…because that means people are talking about it, people are using it, using parts of it*".

**COROLLARY**

In the preceding paragraphs of this and the previous section, we have shown how and why organizations have made the transition towards a competency-based HRM. In table 1 we have summarized the findings, ordered by the themes as shown in figure 4.

**Table 1: Summary of results.**

| Theme | Results |
|---|---|
| 1. Organizational goals and culture | - Main reason for introducing a competency framework is anticipating on rapid changes in IT.<br>- Communication of the reasons for using the chosen competencies and framework is very important as impact may be hefty. |
| 2. Framework selection | - Decide on future use of the framework: will it in time be used for defining all roles in the organization or in a part of the organization (e.g. the IT department) only.<br>- Choose a framework on pragmatic grounds: preferably use an existing framework like the e-CF.<br>- Remember that adaptations of the framework may be necessary. |
| 3. Adoption and implementation | - Deploy gradually (3 to 6 months): necessary for trust building and to overcome resistance.<br>- Start with a pilot and create ambassadors for roll-out.<br>- Plan regular meetings between employee and manager in order to prepare a development plan in line with the future needs of the organization.<br>- Specify the knowledge part of a competency in more detail.<br>- Leadership for the transition must come from management; HRM has a coaching and supporting role. |
| 4. Communication | - Introduction of a competency framework creates a common language in the organization. |
| 5. Performance management | - A change in attitude from reactive to (pro-)active may be observed.<br>- Alignment of personal competencies to (aspired) organizational capabilities makes the organization more future-focussed.<br>- Introducing competencies does not automatically make an organization innovative. |
| 6. Personal development plans | - Personal development plans can be tuned to the (future) needs of the organization.<br>- Employees may expect automatic promotion after having acquired the competencies for a new role. |
| 7. Recruitment and selection | - Use of competencies makes the organization more attractive as an employer.<br>- Measurability of competencies is a challenge. |

# CONCLUSIONS, LIMITATIONS AND FUTURE RESEARCH

As stated in the introduction, the objective of this research is to determine what *good practices and pitfalls are in the transition towards the use of IT-competency frameworks in organizations*. Based on a literature study and interviews, we conclude that competency frameworks are promising for job descriptions in IT as they are time- and organization independent. Competency frameworks seem to be able to give a boost to job performance and job satisfaction as well and a change from reactivity to pro-activity with the employees is observed in most organizations interviewed. Moreover, competency frameworks contribute in aligning the competencies of the employees with the capabilities the organization needs in the future.

There is however a need to link the competency-based job descriptions to other (existing) knowledge-, skills- and attitude sets, especially in the fields of soft skills, business and the IT body of knowledge. In this respect, we think the work done on the European Framework for ICT Professionals (http://ictprofessionalism.eu), where the e-CF is extended with and linked to other material, is promising but more research in this area is still needed.

As all studies our research has its limitations. The study is limited to the Netherlands and only 13 organizations have participated. Furthermore, these organizations may be biased as they started a transition towards a competency-based HRM, at least for the IT staff. Still our findings are congruent with what can be found in literature so we think they are valid: introduction of an IT competency framework can support organizations to become better aligned with the rapidly changing world of IT.

For future research we think that this research can be extended to more organizations, inside and outside the Netherlands. It may also be advantageous to extend this research to organizations that have a longer history in the use of competency frameworks as benefits may vary over time. A promising possibility is the construction of a survey based on the findings from this preliminary research. In this way a more quantitative view on the implications of the introduction of a competency framework in an organization may result.

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