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ORIGINAL PAPER

Competency-Based Model Through It: An Action Research Project

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Abstract Competency-based management is a strategic approach for Human Resources Management and organizational change. Additionally, in business environment, information technologies competencies are a significant factor to organizational success (Bharadwaj, MIS Q 24(1):169–196, 2006). However the implementation of a model of competency-based management in business environment is difficult and complex (Lawler, J Organ Behav 15(1):3–15, 1993). In this context, Information systems are a suitable tool to manage individual and organizational knowledge (Alavi and Leidner, MIS Q 25(1):107–136, 2001; Bowman, Inf Syst Manag 19(3):32–40, 2002). This paper introduces a dynamic approach to a competency-based model through IT. We validate such approach through an action research project in RTVE, the largest company and reference public corporation of radio and television in Spain. The action research process in this organization is presented, and the findings highlight the potential benefits of the proposed model, and may be used in facilitating organizational change.

Keywords Human Resources Management · Competency-based model · Competency Frameworks · Information systems · Organizational change · Action research

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Introduction

The efficient use of Human Resources (HR) should be a key objective of any organization (Ackoff 1995). Also, competency-based management is a major strategic approach for HR management and organizational change (McClelland 1973) and may be critical to gain and uphold strategic advantage (Campbell and Sommers Luchs 1997; Mitrani et al. 1992; Davenport and Prusak 1998; Nadler and Tushman 1999).

The first scientific studies about HR competency-based management emerged in the mid 1970s in psychology, aimed at finding work efficiency on the basis of the worker's personal characteristics (McClelland 1973). This approach is strengthened in the early 1980s mainly with the contribution of Richard Boyatzis, who defined competency as 'an underlying characteristic of an individual which is causally-related to effective or superior performance' (Boyatzis 1982). The concept of competency has evolved over the past three decades, from simple and individual approach, as 'a work-related concept which refers to areas of work at which the person is competent' that is, what people have to know and be able to do to work well, towards a relational, dynamic and broader concept that tries to cover all questions relating to job performance such as vocational standards, task definitions or personal traits (Mansfield 2004), and influenced by different cultural contexts (Cseh 2003).

Currently Competency Management (CM) is considered by some authors (Sagi-Vela 2004) as a complementary methodology to other related HR management practices such as emotional intelligence or, very often, Knowledge Management (KM). Most of today's known research initiatives relating Intellectual Capital and technology (Lindgren et al. 2003; Ward and Aurum 2004) are usually focussed on KM, while CM contributions are scarce and directed at specifically related aspects such as corporate organizational effects (Lindgren 2005) or Competencies development. Both concepts—KM and CM—are closely related, but the first deals more with the capture, analysis, application and reuse of Knowledge within the organization, with the objective of improving business processes quality, reducing costs and generating competitive advantage. CM, on the other hand, is mostly focussed on employee life cycle management in the organization.

Within this background scenario, CM business interest appears very much linked to the new Human Capital (HC) paradigm (Blain and Dodd 1999). Two new dimensions appear. The first is that a new strategic role is expected from HR, linked to what is known as Talent management (Lengnick-Hall and Lengnick-Hall 2003). The second one is that HR becomes another component within the organization such as IT, Financial Management, Supply Chain Management, Customer Relations Management or any other, all of them driven to produce products or services generating value to the customer. The value of HC investment (Cantrel et al. 2006) needs now to be continuously measured and managed. Two associated facts are shaping the development of the new economy: The first is that the Talent management is becoming one of the levers of value determining success in most business markets (Lengnick-Hall et al. 2009). Independently of the current financial crisis, business markets are generally growing, accordingly 'Talent needs' are increasing, particularly in technology-driven organizations (CIPD 2011), so that Talent is considered a most valuable asset requiring new management approaches in today's organizations (Davenport and Prusak 1998). In this environment CM practices are viewed as a most valuable HR business approach to define, measure and manage these talent assets, in a fuzzy and wide concept focussing on human learning management, KM and learning organizations (Nordhaug 1993; Hagan 1996; Berardine 1997). The second one is the growing contribution of Information Technology and systems to the organizations'

business results (Totty 2001). E-Business process transformation is boosting the development of new management approaches based on the design and implementation of Human resources management systems (HRMS) to support and automate HR management. HRMS's initially focused primary interest in automate payroll and basics administrative functions. The Most modern IT-based HRMS's offer comprehensive support for the various activities involved in strategic competence management. Usually HRMS's (or Human Capital Management, HCM) are a module/s of Enterprise resources planning systems (ERP's) (e.g. SAP 2011).

In this comprehensive management context, conditioned by increasing business expectations from managing and developing the organization's workforce, CM becomes the integrating key component in HRMS's (Sagi-Vela 2004), intended to generate, capture and encourage the necessary talent in order to achieve strategic objectives increasing sustainable competitiveness (Bergenhenegouwen et al. 1996). In a competence-based organization, the description, stimulation and development of the individual competencies of the employees are privileged over the job descriptions and duties (Lawler 1993). A key element in HRMS's is the Competency Framework this contains definitions of all the competencies used in the whole or part of an organization (a function or occupation), and provides the basis for the use of competencies in such areas as recruitment, employee development and payroll.

However, despite all the benefits outlined above, the current situation shows a marked 'unbalance' between CM business potential and the actual real deployment extent. Previous research (Urquiza 2007) showed that 86% of Spain's largest organizations have interest in deploying improved, comprehensive competency-based management practices, but just 24% of them have implemented long-term HRMS transformation initiatives. On the other hand there are still few empirical studies that report from the organizational experiences related to implementation and use of HRMS. Theoretically oriented initiatives are based in statistically collected information from thousands of IT professionals around the globe but when it comes to practical implementations, although interesting as a starting reference, they do not fit into the specific business context of individual organizations and are difficult to keep updated and business-aligned in dynamic organizational scenarios. Researchers, HR professionals and IT specialists demand new innovative research efforts to try to break through potential barriers and speed up the deployment of new, business-aligned CM-based initiatives.

The necessity of suggesting new proposals around organizational CM application is evident (Grzeda 2005). His research concludes that a major problem behind the usage of organizational Competency Frameworks is due to the conceptual ambiguity in competency definitions due to complex job definitions schemas and formal contradictions in dependant or independent variables definitions used by Competencies. This ambiguity limitation is addressed in the proposed model, in which the competency definition is not structured around a particular job assignment definitions and related variables.

The identified innovation requirements and wide interest concerning to Competency Frameworks definition justifies the efforts in this research. Thus, our work is mainly focused to propose a dynamic approach to a competency-based model through IT, in order to provide guidance in IT strategic decision making for Software application developers and consultancy services. The proposed approach is validated through an action research project conducted in RTVE, a Spanish large size company.

This paper will proceed as follows: The next section provides an overview on Competency Framework as underlying basis for the proposed model. "A Business Alignment Oriented Approach" section defines the model, while "Action Research" section describes the action research conducted in RTVE. "Results" section summarizes the results and details the project key findings. In the final section conclusions are outlined.

Key Aspects in Organizational Competency Frameworks

Competency Frameworks are currently just viewed as a model definition of competencies to be used by individuals in HR management processes as maps or indications of behavior, knowledge or skills that are valued, recognized and sometimes rewarded by the organization (CIPD 2008). Common and differential aspects in organizational Competency Frameworks can be extracted.

Common Aspects

In most corporate organizational contexts the objective behind creating a framework is to identify the Competencies (and associated levels of compliance) that truly have impact in business results (Draganidis and Mentzas 2006).

The most extended industry methodology relies on creating complex internal job analysis aimed at the identification of 'standard' corporate job profiles (Pereda and Berrocal 2001). Job descriptions include objectives, evaluation criteria, organizational hierarchy and level of autonomy (Pereda and Berrocal 2001). The following steps are considered:

- Process Planning and preparation. Corporate and management implication.
- Employees' dissemination, seeking active process support from labour workforce.
- Generic common corporate competency definition, according to the identified mission, values and strategic options.
- Job profiles definition; each profile is defined in terms of required competencies and performance level, thus finalizing the competency dictionary.
- Framework validation, usually in a limited functional segment of corporate organizational scope.

This complex and highly costly process involves too many people (both internal and external consultants) and has also the disadvantage that in changing market or business scenarios the picture translated to Competencies may become quickly outdated due to a change in corporate priorities towards the business response. Apart from the previous analysis it may also be interesting to consider the outcome from Chartered Institute of Personnel and Development research (CIPD 2011) concerning most frameworks which shows that the following Competencies are always found in most of them: communication skills, people management, team skills, customer service skills, results-orientation, and problem-solving.

Other common external types of methodological approach to creating frameworks relies on working with internal and external expert based on a statistically analysis of information (Dawes and Helbig 2006; Ravarini et al. 2001). The main problem with these types of approaches is that they rely heavily on people, aggravating the conceptual ambiguity problem identified in the previous section.

A mixed combination of the two previous approaches is sometimes considered, as the one proposed by Yang et al. (2006) in their POCCI ('Process Oriented Core Competency Identification') Model. Although results may be satisfactory the authors recognize that the process is very complex.

Differential Aspects

Differences are usually related to the framework content itself. Originally, they consisted mainly of behavioural elements (CIPD 2008) but later they have become broader and more

ambitious in scope, incorporating technical competencies as well. In some cases (Abel 2006) they just outline competency definitions but do not include the relevant information concerning compliance levels and required activity-based employee expected behaviour that is associated to each level. In some scenarios the problem is the opposite, too many detailed content makes associated HR support processes bureaucratic and time-consuming, thus generating reluctant employee attitudes affecting efficiency.

However the deployment strategy is not covered in current frameworks, cannot find guidance hoc on it. The deployment definition strategy is a brand new contribution in this process-based oriented approach, considering also the strategic, specific IT architecture model in place in each particular organization in which competency based management processes are introduced and automated in computer based applications. This aspect may be essential to succeed in any large scale transformation process such as CM, particularly in large-size, technology-driven organizations. Having just a good competency definition model is not enough to successfully approach a significant transformation initiative in HR. What is missing is a strategy definition methodology that includes at least a guide to analyze and diagnose the current organizational situation (both in HR processes development and system support) and a definition and evaluation of current organizational technology scenarios.

A Business Alignment Oriented Approach: From Systems Management Information to Competency Model Definition

Although business alignment is a conceptual, widely accepted paradigm in any functional management domain, CM framework has failed in many business deployment scenarios. As stated in our previous analysis, the fail is mainly due to conceptual ambiguities and strategic issues. Nowadays, no major management transformation occurs in large organizations without IT or technology implication. Our approach addresses both issues (ambiguity and deployment strategy) in an effort to practically contribute to facilitate fast corporate transformation to CM models.

The model was build after many years of business experience in corporate management, and was produced as a response to many organizations' willingness to speed up CM-supported transformation processes in a straight, business-oriented manner that is easy to implement for application in any HR management competency-based process such as e-recruitment, e-Learning, performance management or any other similar processes. As in any real business scenario, we have selected a particular functional domain, common and always present in any large size organization: the IT and systems management domain. The relevance of this domain relies on the fact that Computing and IT-related activity is now recognized as one of the most significant forces that are reshaping business development in the new economy (Stiroh 2000). Far from early predictions that IT management-related activities could lose business influence and even easily be externalised (Dearden 1987), current e-business organizational transformation shows just the opposite effect, particularly in large size organizations (Reich and Nelson 2003) in which CIO's are required to develop new organizational skills, management competencies and abilities to cope with ongoing technology and IT architecture evolution.

The original idea consists of shaping the framework from extracted relevant information that is taken from the particular Business activities Management Model, here the Systems Domain. It has two major advantages compared to other approaches:

1. All organizational activity domains are managed following simple or complex management models. Even in low maturity developed organizations, managers define priorities and objectives, sometimes assigning performance indicators that are periodically reviewed with employees. It is easier and cheaper to work with existing information than initiating new dedicated HR consultancy projects.
2. Shaping the framework in accordance to the management model will ensure a permanent alignment between the Competencies defined and the business objectives which are usually 'incorporated' in the management performance and objectives indicators.

The framework (as showed in Fig. 1) has two major components within its intended scope: the first one is the competency model definition that is built by following adequate performance business indicators linked to the specific business management model (IT and systems in our case), rather than using the classical job work assignment's definition analysis and the subsequent job profiles required for the organization. The second component is the Implementation Technical Strategy definition, covering both Processes and associated System support applications reengineering strategy, in which the methodological approach has been the following one:

- Building a 'characterization' of all HR business processes, identifying competencies-related activities and process interfaces
- Current's Processes and System's status analysis
- Identification of HR Business Technology scenarios
- Evaluation and strategic selection of Organizationally preferred scenarios.

The Activity Management Model for IT and systems shown in Fig. 1 represents the basis of our framework as a reference guide to match against the particular model (functional, service-oriented, etc.) used internally in each organization and it has been structured around three macro-processes:

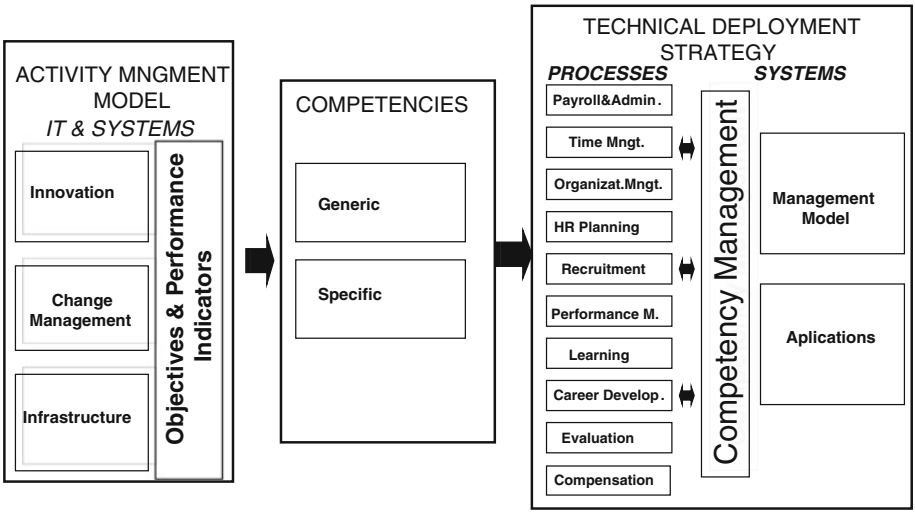

Fig. 1 Competency framework definition scope proposal for large size organizations

1. Innovation: it includes all the system's activities driven to generate Business advantages based on the opportunities generated by technological innovation. System's Planning, Applications and Systems Architecture or Business alignment IT relationships are typical innovation related activities.
2. Change Management: it covers any development or maintenance support of customer's required applications (Business Units as Marketing, Customer Sales or Finances).
3. Infrastructure Support: includes all Data Processing Centers operation and management responsibilities, desktop and network service or help desk support.

This view of organizational systems activity is matched with four responsibility levels:

1. The Financial view: Measures Business value generated to its customers (internal Business Units) from systems management.
2. The Client view: relates to the customer orientation in any systems management model in place. It should incorporate indicators that are valued by Business Units. The Process view: used to evaluate whether IT internal processes respond to Business Units service expectations.
3. The Resources view: is measured in terms of results from HC or Infrastructure management actions performed to achieve results.

With this model, managers can assign different kinds of metrics linked to key performance indicators viewed in this model that are potentially useful in evaluating an employee's performance. Systems Management modeling and the related CIO's usage of advanced management tools such as Balanced Score Card (Kaplan and Norton 1996) that incorporates key performance indicators linked to IT business support activities, is now widespread in large Corporations but never, so far, has this type of modeling been 'linked' or 'used' to create Competency Frameworks.

In our model we identified eight objectives that could match in any job assignment scenario within IT, presented in Fig. 2.

The proposed way to proceed from System's Management information to Competencies selection is explained in the next section with a practical example in which an organization assigns Competencies to its CIO.

The Dynamic Competencies Assignment Approach

The competency model selected for application to employees working in any IT or System's support activity is based on a four level scale (level 0 meaning that the competency is not required) that is associated to both generic and specific kinds of Competencies (Table 1).

The competency assignment process is performed in two consecutive phases. In Phase 1, we identify in which of the 4-quadrant picture of the 'Credibility—Business perception of dependency on Information' Matrix. The two variable combinations in this matrix reflects at any given time both the Systems and Business alignment level in the organization and the relative measurement of value generated to business objectives as perceived by IT and Systems Clients (internal Business Units). Each quadrant contains the 'priority' Competencies that all Systems employees should work on during the next HR management period (Learning to improve competency level, performance management, evaluation, variable compensation, etc.) (Fig. 3).

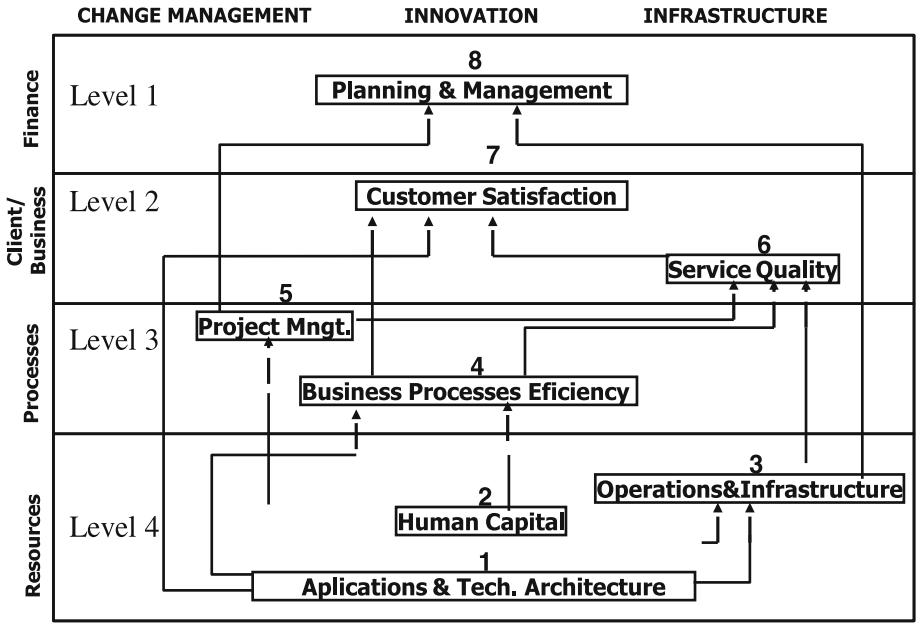

Fig. 2 Overall 2-dimensional systems management reference model

Table 1 Generic and system's specific competencies list

Code	Competency	Level/job C. assignment				
		A	B	C	D	E
OAC	Customer orientation	4	3	4	1	1
TRE	Team work	4	4	3	3	3
ORL	Achievement orientation	4	4	4	1	1
INI	Initiative	4	2	2	1	1
IDO	Organizational alignment	3	4	3	0	0
ANS	Analytic thinking and synthesis capabilities	4	3	3	2	2
LID	Leadership	4	3	2	0	0
COM	Communication abilities	3	2	1	0	0
INN	Innovation	4	3	2	1	1
PLO	Planning and organization	4	2	1	1	0
EXP	Expertise	3	3	3	2	2
TDC	Decision taking attitude	3	2	1	0	0
NEG	Negotiation	3	4	1	0	0
PGF	Financial mngt. and planning	3	3	1	0	0
CNG	Business knowledge	4	3	2	1	0
ART	Technical knowledge: appl. and systems architectures	3	4	2	2	1
ISW	Technical knowledge: software engineering	3	4	2	2	1
PYO	Technical knowledge: CPD operations	3	4	2	2	1

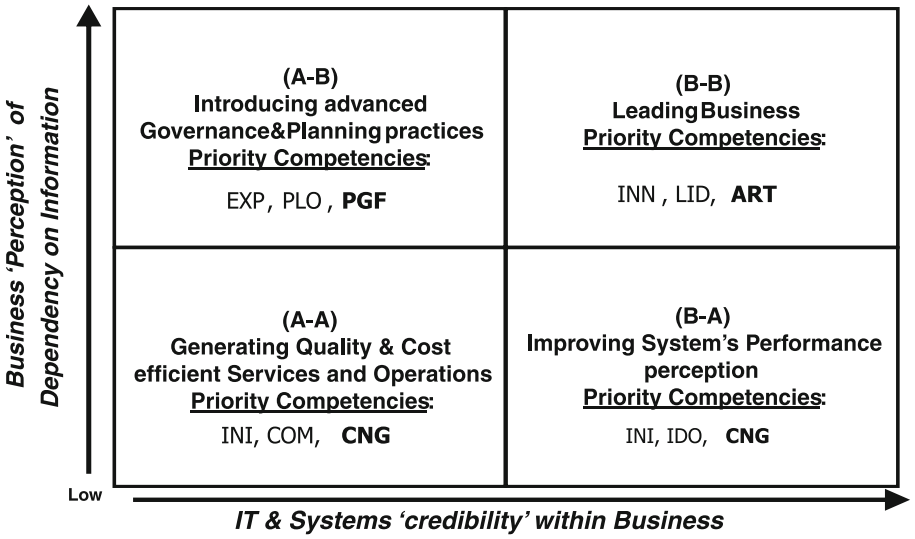

Fig. 3 Priority competencies assignment according to 'Credibility-Dependency' status

In Phase 2, we complete the assignment of Phase 1 with those Competencies that are directly linked to the key performance indicators or similar management information that best match the individual employee's current responsibilities, using the reference management model indicated earlier: we 'fit' the employee in the most significant macro-process of the model and inside his hierarchy level of responsibility in the system's department (Fig. 4).

HRMS Technical Deployment Strategy: Selecting an Adequate Technology Business Driven Scenario

Any significant corporate HRMS technical deployment strategy such as anyone related to competency based management requires a methodological approach to ensure long-term project success. We outline hereafter the most significant steps suggested for this purpose in this contribution:

- HR Processes Characterization: the organization requires a detailed review of final process status review against the current situation including all major business processes to consider, specifying basic activities and interfaces with a particular focus on the most important transformation effects from competencies based practices over current corporate-wide HR processes.
- Final processes objectives from a systems point of view: the idea is to establish the business limits and technical challenges in terms of System and Applications Architecture to ensure an adequate evolution to the final scenarios.
- Identify possible Technology business driven deployment scenarios to be considered by the organization.
- Evaluate and select the corporate Technology business driven scenario and define the roadmap transition strategy from the current to the desired scenario.

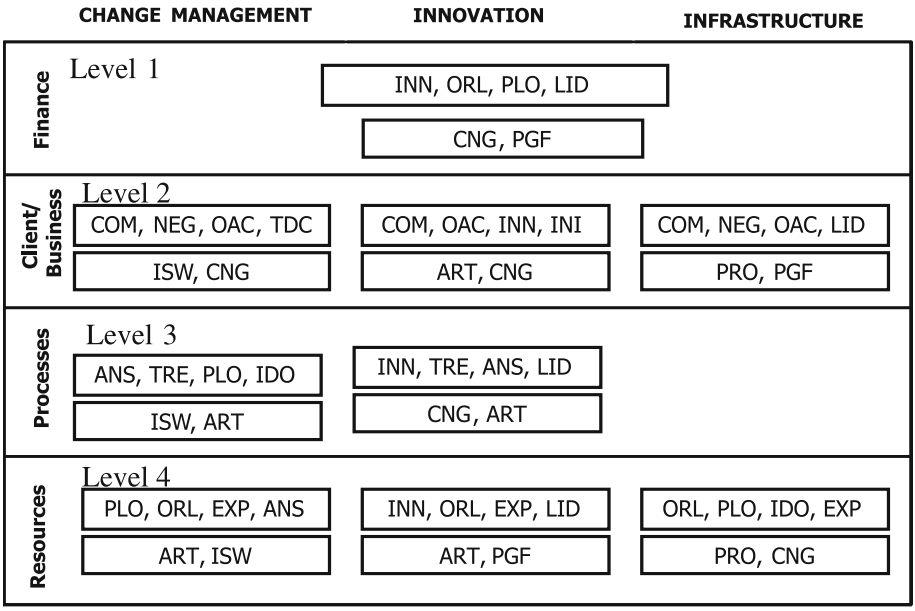

Fig. 4 Competencies assignment according to management indicators

The most challenging and innovative part of the previously outlined approach relies on the identification of alternatives as possible HRMS Technology business driven deployment scenarios to be considered by the organization, before considering any technology or application evolution options. The technical HRMS architecture must be directly aligned with the kind of process management model that HR business managers intend to deploy throughout the organization. Different Organizations choose management models basically in terms of levels of desired centralization or distributed operations scenarios, sometimes even in federated types of architectures in which some shared functions might serve to all corporate Units or Companies while others are handled in an independent manner. The technically aligned approach must fit into the required management model. In the HR business, organizations choose from a range of five possible scenarios to be considered by any large size organization, in which Business Units may coexist under corporate wide department units or incorporating independent Product or Services companies within the group, having local market-oriented operations or multinational type of operations in various countries:

- Applications Independency: typical in largely decentralized organizations or starting scenario after a merging or an acquisitions operation. Units and group companies keep HR process and application autonomy. This may have some disadvantages, such as the lack of a single corporate-wide HR directory, adding difficulties in establishing corporate-wide, common HR practices and increasing systems related synergy difficulties in the managing infrastructure.
- Corporate shared HR Directory: including employees' administrative data base information as well as corporate organizational information. This option is a sort of minimally shared HR information option, maintaining autonomy in Units and Companies within the Group, although this does not facilitate the deployment of corporate-wide HR initiatives.

- Corporate Shared HR Administration: It represents a step forward from the previous scenario into a single Administration System, integrating Payroll, Inventory, Organization Management and HR Planning. This represents the minimum integrating scenario in order to introduce Shared Services options. It requires interfaces between each Company's HR management application platforms.
- Corporate Shared HR Management: Integrates all HRMS processes in a single system, thus facilitating the deployment of corporate wide transformation initiatives such as competency based practices. Generates corporate wide synergies in systems management and technology evolution.
- Corporate Shared Single System: This is the option for those organizations willing to fully integrate all HR Administration and Management processes into a single system, thus maximizing the benefits of generating common HR corporate management culture and practices, sharing infrastructure, Portals, etc.

Final evaluation of preferred scenario should be made considering both the interests and views of the HR and systems managers within the organization, complemented by a detailed Cost/Benefit analysis of each option when applied to the particular organization, considering the migration consequences from the current to the desired final scenario.

Only after the aforementioned HR business and architectural considerations are taken into account is when organizations are ready to evaluate SW market applications or in-house developments to proceed in corporate transformation initiatives such as competency based management.

HRMS Technical Deployment Strategy: Selecting the Right Management Application

Selecting the right or the best suited application to build a new competency driven HRMS organizational strategy is the final step considered within the framework's scope, right after selecting the adequate technology scenario as indicated in the previous step.

The current HRMS application market is considered by most Software analysts as a fairly mature market. Although the basic Administrative, transaction oriented applications have a limited growth potential (probably Outsourcing hosted types of services might be the exception to the rule), the strategic, talent management type of applications, driven primarily by CM, seem to be on the high.

Before the E-Business transformation processes entered into all large organization's IT priorities, the specific Software HR Businesses market consisted of a vast, non-integrated application fragmented Market. Companies had options over hundreds (if not thousands) of different, HR Administration or Management solutions (Payroll, Learning, Performance Management, Work Force Planning and Analytics, CM…). Some were oriented to the global market, others were vertical cross-industry oriented, most of them local, country driven solutions, aimed at satisfying specific, single market demands.

In this context, CM was not an exception to the rule, where early implementations were typically stand-alone or linked to other related HR type of solution, such as Learning or Performance Management, incorporating new technology paradigms as the semantic Learning organizations (Sicilia 2005).

But at present, the above scenario is moving forward very rapidly, in a way that the e-business organizational transformation is driving Industry from the previously stated Software application fragmented scenario to an extremely concentrated one. The vast majority of today's large Organizations (65% of our largest corporations) in which CM has the largest deployment potential, are automating HR (or planning to do so) with one of the

two most successful global, integrated ERP suits—SAP or Oracle (building a comprehensive architecture around the PeopleSoft platform, the world leader in integrated HRMS solutions, acquired in 2005).

Current market research (Draganidis and Mentzas 2006) shows that competency based Management is driving evolution trends in HR management processes, particularly within the scope of most large size organizations. A significant indicator for this trend is the publication of the People-Capability Maturity Model, or People-CMM by the Software Engineering Institute at Carnegie Mellon (USA). People-CMM is a best practice reference to implement state of the art HR management strategies, where CM practices are essential, particularly when organizations set up business objectives associated with advances in the three highest CMM defined maturity levels. This CM driven related Software applications market demand coming from large size organizations makes CM the most relevant business driver boosting the HRMS market growth in the years to come.

In this evolutionary context, Information Systems Solutions Vendors that automate CM processes, typically fall in one of the four Product families: Large Integrated ERP Suites (Oracle/PeopleSoft or Lawson Software), SME Integrated ERP Suites (Northgate Information Solutions or the Microsoft Business Solutions), Standalone E-HRMS (Kronos, Meta4), and finally Standalone CM Solutions (Mindsolve or GeoLearning).

The best suited organizational application is therefore selected after professional evaluation of latest versions of identified or preferred solutions, combining Company/Market/Product required Functionality/Product Architecture information using, if possible, finance and technology expert analyst's information.

The final step in the methodology is about establishing the evolutionary strategy from the current situation to the final selected one. The resulting roadmap must carefully consider the detailed gap analysis between current and final scenarios both in terms of the business processes and in terms of the System and Software application, in a way that a detailed Project Plan can be finally established and presented for final organizational approval.

Action Research

This new dynamically oriented Competency Framework approach was successfully used and applied using an action research project. In this section the Action Research project conducted in RTVE (*Radio Television Española*, the largest company and reference public corporation of radio and television in Spain) is related. We attach, as Appendix I, a letter of RTVE, validating the results presented in this work.

The procedures followed are in the form of process consultation (Baskerville and Wood-Harper 1998), and the main elements of action research practice were considered explicitly (Davison et al. 2004). The process was conducted, linking theory and practice, and the framework was fully deployed including the two major components: the competency model definition and the Implementation Technical Strategy definition, in which the methodological approach included:

1. Building a 'characterization' of relevant HR business processes, identifying competencies-related activities and process interfaces.
2. Current's Processes and System's status analysis was matched against corporate objective model, thus identifying and discussing the relevant corporate gap analysis.
3. Identification of HR Business Technology scenarios.

4. Evaluation and strategic selection of Organizational preferred scenarios, based upon the preferred alternatives and technical and budget implications associated to roadmap designs from current situation to proposed technology scenarios.

The selected organization case (RTVE) assumed and followed a real HR business and systems transformation challenge during the 2 years in which this work's major contributions (Competency Model and Implementation Technical Strategy definition) methods and results were successfully applied. Five phases were set up to conduct the action research.

Project Infrastructure

This phase was supported in three major key elements:

1. Project organization and Team profiles and resources assignment: structure, reporting mechanisms and responsibilities assignments, including participation from researchers and company staff:
   - Researchers: The team included an experienced team leader (TL), and support from one researcher expert (RE) in software engineering management as senior consultant.
   - Company Staff: Chief Information Officer (CIO), a dedicated Project Manager (PM), and three mid-range analysts, plus two HR analyst (one from administration and the second from the career management team).
   - Project organization included all required logistic project issues to be used during project life cycle.
2. Definition of a follow-up and communication plan structured around scheduled Communications, a General Meeting to start the action research, in order to set up the action planning, Scheduled Meetings during Project lifecycle and Final Acceptance and Analysis Meeting, together with follow-up action plan for the next 2 years in the Company and in the Corporation.
3. The detailed action plan, including tasks time schedules, major control points during the two-year project and required budgetary implications. A risks identification matrix associated to key success indicators was also produced, in order to identify preventive actions in plan to consider during project execution.

Intervention Diagnosis

The Company tried to evolve from a pure administrative, civil servant type of employees management to a more advanced management model, in which career development and performance evaluation were considered key elements in the new HR business management model. The diagnosis performed showed that even the administrative payroll application in place required major updates, and no IT application support was available for the new requirements. The proposed competency based model was then evaluated both by HR and systems management, and the fact that the proposed methodology included the overall current Processes and System's status analysis to be matched against corporate objective model generating a detailed gap analysis was key for the go ahead mandate from the corporation. Overall business management support from HR departments was the key driver during the diagnosis phase of the Project.

Action Planning

The action plan based on the key goals definition:

- Goal 1. Identify and define the process objectives.
- Goal 2. Identify and define the project lifecycle phases and work packages structure.
- Goal 3. Identify and define the required HRMS and systems support activities in each phase, in order to identify HR Management risk possibilities.
- Goal 4. Identify and take HRMS and systems measures to avoid o minimize identified HR management risks.
- Goal 5. Keep track risk materialization during the first year of new process running.
- Goal 6. Outcome Analysis Action Taking.

Outcomes Analysis and Lessons Learned

This phase produced a set of very interesting outcomes and lessons learned to be considered beyond the specific, limited scope of this initiative:

- About the benefits of creating individual Corporate Competency Frameworks including and considering the HR process and system strategy definition: the 'extended' model scope approach has been, according to RTVE staff, a key success element in this major transformation initiative.
- About the way in which competency models are created: business orientation is a straightforward approach rather than the classical job definition model approaches, particularly if no professional certification requirements exist within the interest scope in the organization.
- About how IT and systems infrastructure is managed in large organizations: In scenarios where technology is becoming a relevant business value generator, service oriented approaches are recommended (ITIL is continuously getting significant value in this area).
- About the HR management applications market evolution: large organizations tend to favour migration to integrated, wide scope process automation solutions (SAP, Oracle) rather than stand alone, best of breed type of solutions.
- About practical employee performance evaluation practices: the model approach suggested in this work has had an extremely positive effect in key employees' commitments, even without previous personal experience in this extended type of practice.

Results

RTVE had previous experience in the use of classical job profile oriented approaches implementing limited scope CM applications. The following tables show the implementation opinions extracted from more than 650 process participants (85% dedicated to systems related activities, 15% working in HR management positions). For the Competency Model Selection Process, results are summarized in Table 2.

The most significant aspect of the above responses is that almost three out of four professionals respond with a good or very good perception about the proposed model, with the most relevant aspect being process efficiency.

Table 2 Employees and HR's perception on Competency Model Selection Process

	Fully agree (%)	Agree (%)	Disagree (%)	Fully disagree (%)
1. System's Management indicators are perceived as adequate for Performance Improvement processes	26.50	51.76	10.50	7.14
2. Priority Competency assignment process is straight and easy to use	33.33	38.10	19.50	9.15
3. Overall Competency Selection process is more efficient than other known statistically based approaches	50	28.57	14.29	7.14
4. Proposed Competency Selection process is easily adaptable to other Business Processes	21.43	40.48	28.57	9.52
5. The Competency Selection process is applicable to the rest of organization's job profiles requirements	19.05	39.20	24.95	14.29
6. Overall Competency Selection process is effective	21	52.38	14.29	12.33
	28.55	41.74	18.70	10

Table 3 Employees and HR's opinion on Competency based approach organizational effects

	Very high (%)	High (%)	Low (%)	Negative (%)
1. Employees perception on organization's interest in people's career development	16.07	42.86	21.43	16.07
2. Effect on Business results	14.29	39.29	41.07	5.36
3. Employees professional recognition	32.14	46.43	16.07	5.36
4. Employability	17.86	44.64	25	12.50
5. Better internal communication	37.50	48.21	10.71	3.57
6. Others	21.43	37.50	30.36	10.71
	23.26	43.16	24.11	8.04

Concerning the usage of the competency model in evaluating the organization's Systems manager's performance (360° evaluation process including self-evaluation, colleagues, superiors and the group of subordinates), the results were found in Table 3.

An unexpected result extracted from these answers is that the highest valued effect from the participants in the process is the improvement in internal communications among employees, managers and organization's HR professionals.

In relation to the technical deployment strategy approach suggested in this framework, Table 4 summarizes the systems manager's opinion about its efficiency and overall process quality.

Data in Table 3 indicate that in general terms, IT professionals value the strategic deployment approach suggested in this proposal (four out of five professionals have a high or very high opinion in relation to the deployment aspect of the framework).

Apart from the previous statements, and focussing only in the HR and Systems Management's opinion, 3 out of 4 of them believe that the management model based approach is "Much more" or "More" efficient than previously known approaches, and 65% think that the methodology can easily be translated to any other corporate wide activity domain.

Table 4 Systems Management's opinion on overall technical deployment strategy

	Very high (%)	High (%)	Low (%)	Negative (%)
1. Efficiency degree	34.25	41.75	20.50	3.50
2. Clear and precise process sequence	36.50	45.75	10	7.75
3. Business context adaptability	32.50	48.50	16.25	2.75
4. Overall process quality	35.75	46.50	12.25	5.50
	34.25	45.50	14.75	5

The nature of the proposed comprehensive framework creation is a 'qualitative' research effort in which its results are summarized in the presented variables or professional's opinions after field validation. The theoretical reference model to match against these results are basically the internal type of methodology obtained in terms of the detailed organization's job definitions including mission, evaluation criteria, status, activities, autonomy level and work responsibility. Once full job descriptions are ready, effort is directed at building a competency based set of job profile requirements definitions (Pereda and Berrocal 2001) following a long process of activities. This theoretical method is sometimes performed (or just complemented) with other externally collected statistical information (Dawes and Helbig 2006). Our results confirm that in terms of efficiency, adaptability and overall quality the dynamic business oriented approach is a preferred alternative to the previous ones. Although other types of mixed approaches have also been suggested like the POCCI Model (Process Oriented Core Competency Identification) created by Yang et al. (2006), they do not yet have relevant market acceptance and as the authors themselves admit, the process is extremely complex, expensive and takes too long to implement in large size organizations.

Conclusions

The overall main objective associated with this research was to provide an innovative approach to define Competency Frameworks that could efficiently be used by large size type of organizations willing to transform the employees' management processes using competency based models. The selected activity domain to evaluate these proposal results is the IT and Systems Management domain. The methodology used has been defined as a modified version of the Draganidis and Mentzas (2006) proposal, introducing changes in the way the competency model is constructed and incorporating in its scope the technical deployment strategy definition.

The methodological phases followed were:

- Detailed activity Planning: including 'state of the art' analysis about application of the competency paradigm and industry based proposals as well as market application evolution trends.
- Definition of a Reference Management Model for IT and systems activities domain, with recommendations about key performance indicators and associated performance metrics in this field.
- Definition and selection of the required, dynamically business oriented Competency Model, as explained in the previous parts of this paper.

- Technical Deployment Strategy Definition for Large size type of organizations, including: A generic HRMS Processes characterization very focussed on facilitating the identification of areas in which CM affects HR related activities, and a Strategy definition method to transform management processes into competency based practices and selection of the best suited application Software implementation option.
- Final validation of the proposed framework through an action research project, introducing new relevant Competency based management practices.

The final conclusions obtained from this research are summarized as follows:

- About the requirement to establish Competency frameworks in large size organizations including the technical deployment strategy definition associated to HR Processes and Software applications in its functional scope: no major, comprehensive HR transformation process, as the one represented by competency based management, can be successfully undertaken if the technical deployment strategy is not taken into consideration at early stages of the transformation process. When included within the Competency Framework, we ensure a reference roadmap definition to progress in a well-defined direction in terms of HR management maturity steps definition path.
- About the way Competency Model definitions are established: the practical results obtained after field validation in competitive large size organizations allows us to conclude that the proposed dynamic approach to Competency Model definitions may be an alternative methodology to the classical ones (Corporate Job profiles definition, professionally based market and experts surveys, etc.). The proposal suggests a competency definition process extracting information and performance indicators directly from the specific activity Management Model, thus ensuring a permanent dynamic alignment between defined Competencies and Business requirements and objectives.
- About the HRMS Application Market evolution: the large size organization trend is to rely on the general purpose integrated type ERP, even in scenarios where just HR management Administration or Management processes are the business focus. HR specific solutions constitute an extended installed base in local markets such as in Spain, while the 'made to measure' in-house applications are almost non-existent in this market.
- Finally, about the acceptance of the proposed method to deploy HRMS solutions in large size organizations: around 80% of professionals involved in the evaluation of the proposed methodology in real business scenarios have expressed satisfaction with the suggested deployment process, with particular interest in the initial characterization of all business processes and the possibility of evaluating long term HRMS strategy in relation to the proposed business scenarios.

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