EXTENSION OF THE TECHNOLOGY ACCEPTANCE MODEL (TAM) TO THE ADOPTION OF THE ELECTRONIC KNOWLEDGE AND SKILLS FRAMEWORK (E-KSF) IN THE NATIONAL HEALTH SERVICE (NHS)

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Abstract
The electronic Knowledge and Skills Framework (e-KSF) is the performance appraisal intranet system used by the National Health Service (NHS) in the United Kingdom. Introduced in 2004, the initiative is a new pay system that simplifies and modernises the conditions of service for nurses and other NHS staff, excepting doctors, dentists and senior managers who have a separate pay contract and appraisal system. This study examined the extension of the Technology Acceptance Model (TAM) to the adoption of e-KSF in the National Health Scheme (NHS). In order to have a successful adoption of the e-KSF in NHS, the
study suggests early user acceptance testing to reduce the risk of user rejection of the system, given the large investment this type of IT project entails. The study provides a foundation for future study on why using the e-KSF in the NHS is the way it is and how to improve the system design to encourage improved users acceptance and use of the system.

**Keywords:** National Health Scheme, electronic Knowledge and Skills Framework, Nigeria.

**Introduction**

The electronic Knowledge and Skills Framework (e-KSF) is the performance appraisal intranet system used by the National Health Service (NHS) in the United Kingdom. It was created as part of the “Agenda for Change” (AfC) initiative introduced in 2004, as a new pay system established to simplify and modernise the conditions of service for nurses and other NHS staff, except doctors, dentists and senior managers who have a separate pay contract and appraisal system (Buchan & Evans, 2007). The AfC initiative aims to encourage new ways of working in the NHS to improved quality of care for patients and the delivery of more efficient and effective service (Brown et al., 2010). In this sense, the e-KSF was created to help NHS organisations to develop, record and maintain the Knowledge and Skills Framework (KSF) and Personal Development Plans (PDPs) of their staff (Buchan & Evans, 2007), and to enable line managers review the performance of their staff more effectively. The use of internet technology for people management activities in organisations, as exemplified by the use of the e-KSF is a trend in contemporary organisations and it is generally known as electronic HRM (e-HRM).

Like most Information Technology (IT) projects past research on the NHS Knowledge and Skills Framework (NHS KSF; Buchan &
Evans, 2007; Brown et al, 2010) reveal that there is an underutilisation of the e-KSF for annual Performance Development Reviews (PDRs), which also poses as a barrier to the realisation of the full benefits of the technology in the NHS. Njoku (2010) study of the perceptions of line managers towards the e-KSF also reported poor use of the e-KSF by line managers in conducting annual PDRs in its case study. Linked to these findings, a significant body of IT research suggest that it is essential for organisations to understand the determinants of users’ acceptance and use of new technology when adopting a new technology because it will help inform organisations on what may encourage the intended system users to use the system in order to realise its full benefits (Davis et al, 1989; Davis, 1993; Venkatesh, 2000; Yousafzai et al, 2007a).

This exploratory study which aims to make a significant contribution to knowledge and research in e-KSF adoption in the NHS by extending the Technology Acceptance Model (TAM) to the context of e-KSF adoption as it critically examines the determinants of managers’ acceptance and usage of the e-KSF for annual PDRs. The Technology Acceptance Model used to underpin this study proposes that perceived usefulness and perceived ease of use of IT systems are the major determinants of whether or not the intended users of the IT system would actually use it (Davis, 1993). At the same time, TAM is widely acknowledged and applied in IT research for its robustness across settings, populations and in understanding technology usage behaviour (Venkatesh, 2000), which makes it appropriate for this study. Another contribution of this study is in relation to addressing a gap identified within TAM related research, given that, within IT adoption studies, the use of student samples and environments other than business settings for conducting TAM
studies has been criticised by IT researchers (Largish et al., 2003; King & He, 2006; Schepers & Wetzels, 2007). Thus, this study focuses on the perception of managers’ towards a technology used within a business environment.

Literature review

E-KSF adoption
Historically, performance appraisals (PA) have been typically conducted using the traditional paper-and-pencil approach. However, using this traditional approach for PA does not allow managers to compare staff performance overtime which is possible when using online PA systems (Payne et al., 2009). Since online PA systems can act as a historical archive for storing past evaluations which allows the evaluation of staff evaluation over time. Kavanagh and Thite (2008) add that online PA systems allow accessibility to data from any computer with internet access at any time, and online PA systems ease and speed up the rate at which accurate HR-reports are generated. Clearly, the traditional paper-and-pen PA method is no longer seen as an appropriate means of managing staff performance in contemporary organisations. These days, the NHS often conducts its PA with the support of the internet using the e-KSF website (Mundey, 2010; Brown et al., 2010). As a PA website, the e-KSF enables line managers to have access to past PDRs and PDPs of their staff, as well as, previously identified and agreed training needs of their staff via the internet. Additionally, it allows line managers to prepare for annual PDRs and equally helps them to record current PDRs and PDPs online while conducting annual PDRs with their staff. According to Payne et al. (2009), using online PA systems also provides employees with the opportunity to have access to information about their evaluation at any time. This therefore encourages the alignment of
employee behaviour and effort with what is important and expected to help the NHS meet its intended performance outcomes.

The e-KSF was originally developed as a stand-alone system (Buchan & Evans, 2007). However, to encourage NHS organisations to become learning organisations, the functions of the e-KSF has been integrated to a Learners Management System (LMS), software which is the first module of the ‘Managed Learning Environment’ (MLE) (Mundey, 2010; Gray et al, 2009). The e-KSF is further bi-directionally linked to the Electronic Staff Record (ESR) (the NHS national HR and payroll system) to make it easier to use (Buchan and Evans, 2007). This bidirectional link was implemented in the e-KSF to ensure that the performance management system (PMS) in the NHS is able to cover skills gap, annual KSF development review, competency management, and succession planning and management development. Functionally, the e-KSF is an appraisal system based on the competency-based approach of HRM which also provides an integrated software that allow NHS organisations to seamlessly integrate their HRM activities of workforce planning, recruitment, PA, training, development and remuneration based the KSF which was not possible using the old paper-and-pencil PA system (Payne et al, 2009; Mundey, 2010). This integration process was done in order to ensure that the e-KSF can facilitate the maximisation of the capabilities of the workforce in the NHS (Brown et al, 2010). Soderquist et al (2010) reinforces this as they believe that the concept of competency in HRM provides the basis for integrating the organisational-specific skills to the HR processes, such as, recruitment, performance appraisal, etc., (for horizontal integration), as well as, to the organisational strategy and business outcomes (for vertical integration), to ensure that organisations can achieve their outcome goals through the efforts of their employees.
It therefore follows that the competency-based approach of HRM enables organisations to ensure that the right skills and effort are focused on the things that really matter to it and will make an impact on its performance (CIPD, 2009). As a result, it is expected that performance appraisals conducted using the e-KSF will ensure that people working in the NHS remain competent at their posts and deliver quality service, which enables the NHS achieve its intended performance outcomes through the efforts of people working in the organisation (NHS, 2006; NHS 2009).

Regardless of the potential benefits of the e-KSF to the NHS, such as, fair pay, partnership working, integrated human resources systems, better recruitment and retention, and higher quality care (Buchan & Evans, 2007), the Health Commission’s annual national NHS survey demonstrated that, “significant numbers of staff were not receiving the regular performance reviews or agreeing the PDPs required to operate the KSF …” (Brown et al, 2010:36). While studies by the Institute of Employment Studies (Brown et al, 2010), observed poor levels of KSF implementation in its case studies and the study by Buchan and Evans (2007) demonstrated that none of the NHS Trusts they studied had achieved 100 percent coverage of PDPs or had all relevant staff assimilated on to the KSF. Findings from the Brown et al, (2010) research further illustrated that (Brown et al, 2010: 32):

*There is [...] emerging evidence that the lack of interest by managers in conducting developmental appraisals based on the KSF is [...] a barrier to implementing the KSF, and the process is just not realistic in this context.*

Yet again, Brown *et al* (2010) reveal that line managers’ lack of understanding the e-KSF, as well as, the fact that they had not
received effective training to use the system acted as major obstacles to the use of the e-KSF for regular performance reviews in organisations.

**User acceptance of e-HRM systems**

Organisations are increasingly investing in IT systems to increase individual productivity, which is expected to contribute to organisational productivity and revenue generation (Venkatesh et al, 2000; Ifinedo, 2011). According to IT literature, one of the key measures of IT adoption success in organisations is in achieving the intended level of IT usage (Davis, 1998; Schepers & Wetzel, 2007; Dong, 2011). Previous research support this by confirming that users’ lack of IT acceptance acts as a barrier to the success of IT projects (Davis, 1993; King & He, 2006; Martin et al, 2008). In response to this finding, a variety of perspectives have been applied to IT adoption research in order to provide an understanding of the determinants of technology usage (as illustrated in Table 1). As an example, the Technology Acceptance Model (TAM) developed by Davis (1989), and the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980) suggest that intended users will accept a new technology if they voluntarily intend to use it. This intention is determined by its significant perceived usefulness and ease of use of the technology, which leads to the building of the attitude towards using the technology (as shown in Figure 2.1).
Based on TAM, the perceived usefulness (PU) construct refers to “the degree to which an individual believes that using a particular system would enhance his/her job performance” (Davis 1989:320). Whereas, the perceived ease of use (PEOU) construct is, “the degree to which an individual believes that using a particular system would be free of physical and mental efforts” (Davis, 1989:323). Legris et al (2003), posit that the external variables in the TAM helps to provide a better understanding of what influences PU and PEOU as their presence guides the actions needed to influence a greater use of IT systems by users. TAM has however been criticised of being able to only explain about 40 percentage of IT system use (Legris et al, 2003) and its predictive power has been criticised of lacking the ability to provide system designers with sufficient information needed to produce users’ acceptance for new technology (Venkatesh, 2000).

Figure 2.1: The TAM Model

**Research Model**

Like most e-HRM studies which examine the use of the internet for HRM practices, TAM was adopted as a foundation for this study. Thus, the conceptual model (see Figure 2 below) is consistent with the TAM model (Davis, 1989). Building on the TAM and recent research (Brown *et al.*, 2010), it can be rightly argued that line managers acceptance of the e-KSF may lead to their use of the system to conduct annual PDRs in the NHS. This expected outcome is also assumed to rely on external variables such as: line managers understanding of the system and the facilitating condition which relates to members of staff being assigned their KSF post outlines. Overall, these external variables are expected to influence the TAM constructs of PU and PEOU. Therefore, this study proposes that:

*H1a:* Two external variables also known as the prior factors in this study which include: line managers understanding of the system and the facilitating condition will have a significant positive effect on the PU.

*H1b:* The prior factors will have a significant positive effect on PEOU.

*H1c:* The prior factors will significantly affect the actual system usage positively.
Figure 2.2: Research Model

**Training:** The Brown *et al* (2010) research on the NHS KSF identified training received by those conducting reviews to be a key factor to making the online appraisal system work well. Also, Amoako-Gyampah and Salam (2003) which used training as an external variable of TAM in their study conclude that training allows users to obtain first-hand information and experience; it allows users to explore the PEOU of the system; and helps in the formation of shared beliefs in the benefits of an IT system which influences both PEOU and PU of the system. Yi and Davis (2001) and Huag (2011) add that training influences users’ attitude, behaviour and performance with an IT system. This makes the relationship between training and both PEOU and PU of significant interest in this study. Thus, it can rightly be argued that training given to line managers as part of the e-KSF adoption
process will affect their perception towards the ease of use and usefulness of the system. Therefore, this study proposes that:

H2a: Training received by line managers to use the e-KSF will have a significant effect on the PU of the system.
H2b: Training received by line managers to use the e-KSF will have a significant effect on the PEOU of the system.

Understanding of the system: The notion that having an understanding the e-KSF plays an important role in shaping users’ perception towards the system is supported by previous research that identified the lack of understanding the e-KSF by line managers as a barrier to the use of e-KSF for annual PDRs (Brown et al., 2010). This finding that users are unable to understand the e-KSF is opposed to one of the principles on which the KSF is built, which is the fact that the KSF to should be simple to explain and understand (Brown et al., 2010). Therefore, this study proposes that:

H3a: User’s understanding of the e-KSF will have a significant positive effect on the PU.
H3b: User’s understanding of the e-KSF will have a significant positive effect on the PEOU.

Facilitating conditions: Facilitating conditions are the factors that make an act easy to accomplish (Dong, 2011). For example, the PDRs in the NHS is based on the Knowledge and skills framework (KSF) which defines and describes the knowledge and skills required for NHS staff to work effectively and efficiently at their jobs and deliver quality service (Buchan & Evans, 2007). As a result, each job is therefore expected to have a KSF post outline
that sets out the dimensions, levels and indicators required for the post holder to undertake the job effectively and efficiently. Accordingly, the KSF post outline becomes a critical element in ensuring that the e-KSF website can be used easily to accomplish PDRs in the NHS. As such, staff who receive performance appraisals would therefore be expected to already have their KSF post outline assigned to them and saved in the e-KSF website before a KSF appraisal review can be undertaken (NHS, 2009). Having staff members’ KSF post outlines stored on the website also helps in the formation of shared beliefs in the usefulness and ease of use of the system for undertaking annual PDRs by users in the NHS. From an expectancy point of view, it follows that if managers and staff know that the KSF post outlines needed for annual PDRs are already contained on the e-KSF website, they may perceive the e-KSF to be useful and easy to use for annual PDRs which in turn may make it more likely for the e-KSF to be used for annual PDRs. Hence, this study proposes that:

\[ H4a: \text{Facilitating conditions for e-KSF will have a significant positive effect on PU.} \]
\[ H4b: \text{Facilitating conditions for e-KSF will have a significant positive effect on PEOU.} \]

**Organisational support:** Organisational support is especially important when new IT systems are introduced in organisations because of the associated changes in the work place that goes along with them. These changes are sometimes met with resistance from intended users’ (Dias, 1998), which needs to be minimised in order to encourage the system’s success within the organisation. Past research which studied the Attitude towards E-HRM (Voermans & Van Veldhoven, 2007) demonstrated that ‘user support’ provided by the organisation is a predictor of positive
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attitude towards E-HRM for managers. While Venkatesh (2000) suggest that organisational response to help users overcome difficulties in using the technology is very important as it helps frame users’ perceptions towards the technology. Similarly, Huag (2011) argue that having technological leaders who support the technological change in an organisation may perhaps be the most significant factor for IT project success. Extending this notion to the context of e-KSF adoption, it will therefore be expected that providing organisational support during e-KSF adoption will encourage positive attitudes towards its acceptance and use. Thus, we propose that:

\[ H5a: \text{Organisational support provided for the use of the e-KSF will have a significant effect on its PU.} \]
\[ H5b: \text{Organisational support provided for the use of the e-KSF will have a significant effect on its PEOU.} \]

Users Perceptions (PEOU and PU) and User’s acceptance:

PEOU and PU constructs in the TAM have been noted to be heavily researched in TAM studies (Legris et al, 2003; Yousafzai, 2007b). This is the case because the TAM emphasises that users acceptance of a new technology is determined by its significant PU and PEOU, which leads to the building of the attitude towards using the technology. On the other hand, TAM also emphasises the importance of PU over PEOU as a key determinant of users’ acceptance (Lin and Chang, 2011).

Karahanna et al (1999) explain that this results from the fact that (Karahanna et al, 1999:200):

> [as] users gain experience with the system, ease of use concerns seem to be resolved and displaced by more
in instrumental considerations involving the efficiency of the innovation to increase one’s job performance (i.e., perceived usefulness).

This, therefore, makes PU to have a significant effect on the intended use for both experienced and inexperienced users of a website or IT system (Liao et al, 2011). Empirical study posit that the major effect of PEOU is through PU rather than directly on user’s behavioural intention (BI), because it is believed that all things being equal, the easier it is to use a technology the more useful it becomes to the user (Venkatesh, 2000). Nonetheless, King and He (2006) performed a statistical meta-analysis on 88 published TAM studies and reveal that, “the only context in which the direct effect of PEOU on BI is very important is in internet applications” (p.12). Direct effect of PEOU on user’s intention has also been found to be stronger in the early stages of learning and behaviour, as well as, pre-implementation (Davis, 1989; Venkatesh et al, 2003; Dong, 2009). Furthermore, Yousafzai et al (2007b) argue that the significance of the PEOU-Attitude relationship in the TAM is based on the assumption that the easier a system is to interact with, may influence the initial decision to adopt a system in voluntary settings. Whereas in mandatory settings (e.g. business settings), a user’s only freedom of choice is to wholeheartedly accept the innovation (Leonard- Barton, 1998).

Methods
Sample
A cross-sectional study using both quantitative and qualitative method to collect primary data from 80 line managers in an NHS organisation in the United Kingdom was used to test the hypotheses. The NHS case organisation has adopted the use of the e-KSF for its annual PDRs between each staff member and their
line managers. Like most NHS organisations it has been challenged with the underutilisation of the e-KSF for annual PDRs. Drawing from the Brown et al (2010) study, it was also observed that NHS organisations which worked locally to make the use of the e-KSF less complex and less time-consuming for PDRs by simplifying, editing and making the KSF more flexible were observed to have more successful implementation of the KSF and the e-KSF system. The emailed questionnaire was pre-tested by 4 HR managers with expert knowledge of the e-KSF for face validity, to ensure its acceptability and ease of completion by research participants. This activity resulted in the modifications of the words on the questionnaire, the correct estimation of the time required to complete the questionnaire and also the addition of a new question. From the list of line managers provided by the organisation for this study, 440 line managers were sent emailed questionnaires. 149 responded to the email, 54 stated that they were not line managers, 15 indicated that they were line managers but would not be able to participate in the study because they had not used the e-KSF. While, 80 completed questionnaires were returned by post (10) and by email (70).

**Measures**

The questionnaire was divided into two parts (the qualitative data collection section and the quantitative data collection section). The qualitative aspect of the questionnaire consisted of open-ended free response questions which allowed an in-depth study of the research problem from the qualitative data collected. Most measures used for all the constructs (both the independent and dependent variables) were developed specifically for this study based on an extensive literature review. Therefore the quantitative data section had 4 ‘Yes’ or ‘No’ items. While, 15 items were measured using
statement-style (Likert-type four point scale format) with 1 representing strongly disagree up to 4 representing strongly agree.

Preliminary Analysis
The reliability and validity of the research instrument was tested using exploratory factor analysis and Cronbach’s alpha respectively. From the reliability test most of the scales used were shown to have good internal consistency (Cronbach’s alpha coefficients), as they exceeded the recommended 0.70 (Nunnally, 1978). For instance, Perceived usefulness, $\alpha = 0.72$; Perceived ease of use, $\alpha = 0.81$; Understanding the system, $\alpha = 0.77$ and actual usage of the system, $\alpha = 0.83$, and there was no construct which showed poor reliabilities ($< 0.60$) (Sekaran and Bougie, 2010). An exploratory factor analysis was conducted using the Principal Component Analysis (PCA) for all items in the multi-item constructs in order to explore the extent to which there were distinct groupings of items taken together to constitute a consistent reflection of the constructs. All items in the multi-item constructs had high factor loading (above the recommended 0.40) (Pallant, 2010), with majority shown to be above 0.80.

Model Specification and Analysis
Linear Regression Analysis
Linear Regression Analysis (LRA) in which a single independent variable is used to predict a single dependent variable was applied to examine the hypothesis of the research model. The LRA allows us to observe the path coefficients ($\beta$) and also examine the goodness of fit of the research model in order to ascertain its applicability. Firstly, the possible combinations of the model variables are defined based on dependent and independent variables, and the path coefficients are measured in a standardised way in order to determine the model coefficient for every
combination (as illustrated in Figure 2.2). The strength of the relationship is indicated by the standardised regression coefficient (β), which helps to tell us how much of the variance in the dependent variable is explained by the independent variable (Hair et al., 2011). While the R square (r²) signifies the percentage of variation in one variable that is accounted for by another variable in the research model. In effect, r² provides the predictive power of the variables. The result of the analysis is contained in Table 2.1.

Table 2.1: Regression Analysis

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>(r²)</th>
<th>Independent Variable</th>
<th>Unstandardised coefficients</th>
<th>Standardised coefficients</th>
<th>t-statistic</th>
<th>Significant Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>R square</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEOU</td>
<td>0.121</td>
<td>Prior Factors</td>
<td>0.384 (0.105)</td>
<td>0.384 (0.23)</td>
<td>3.672</td>
<td>0.000</td>
</tr>
<tr>
<td>PU</td>
<td>0.112</td>
<td>Prior Factors</td>
<td>0.523 (0.097)</td>
<td>0.523 (0.26)</td>
<td>5.420</td>
<td>0.000</td>
</tr>
<tr>
<td>PU</td>
<td>0.353</td>
<td>PEOU</td>
<td>0.594 (0.091)</td>
<td>0.594 (0.25)</td>
<td>6.527</td>
<td>0.000</td>
</tr>
<tr>
<td>ACP</td>
<td>0.171</td>
<td>PU</td>
<td>-0.205 (0.051)</td>
<td>-0.414 (0.19)</td>
<td>-4.012</td>
<td>0.000</td>
</tr>
<tr>
<td>ACP</td>
<td>0.115</td>
<td>PEOU</td>
<td>-0.168 (0.053)</td>
<td>-0.340 (0.17)</td>
<td>-3.189</td>
<td>0.002</td>
</tr>
<tr>
<td>Usage</td>
<td>0.120</td>
<td>ACP</td>
<td>-0.699 (0.214)</td>
<td>-0.346 (0.13)</td>
<td>-3.261</td>
<td>0.002</td>
</tr>
<tr>
<td>Usage</td>
<td>0.422</td>
<td>PU</td>
<td>0.650 (0.86)</td>
<td>0.650 (0.86)</td>
<td>7.549</td>
<td>0.000</td>
</tr>
<tr>
<td>Usage</td>
<td>0.468</td>
<td>PEOU</td>
<td>0.684 (0.083)</td>
<td>0.684 (0.08)</td>
<td>8.279</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Note: Hypotheses are supported if variables are significant at ≤0.05 level of significance.

The results of the regression analysis demonstrate that most of the hypotheses were confirmed by the data. For instance, the 'prior factors’ were shown to significantly affect PU and PEOU of the system (supporting H1a and H1b, respectively). At the same time, the two constructs (PEOU and PU) were observed to significantly affect the user’s acceptance of the system as predicted by H6a and H6b. PEOU significantly affects PU of the system as well, confirming H6c. The data equally illustrated that PU, PEOU and
User’s acceptance of the system have a significant effect on the ‘Actual usage’ of the system.

Overall, these results show that the model has sufficient explanatory power and therefore could predict users’ acceptance and use of the e-KSF by line managers for annual PDRs.

**Multiple regression analysis**  
**Multiple regression analysis of Prior Factors on PEOU**  
A multiple regression analysis was carried out between the prior factors and the PEOU of the system in order to identify the variables within the prior factors that contribute the most in explaining the relationship between the prior factors and the PEOU of the system. The individual effect of each prior factor on PEOU was therefore examined. As training, the facilitating conditions and managers’ understanding of the system was seen to significantly affect the PEOU of the system (supporting H2b, H3b and H4b), and are therefore the variables which contribute the most in explaining the relationship between the prior factors and the PEOU of the system. However, the training given to the line managers to use the system was shown to negatively affect the PEOU. Among the hypothesised effect of the individual prior factors on PEOU, only the organisational support- PEOU link was not confirmed. Multiple regression analysis was also carried out between the prior factors and the PU of the system in order to identify the variables within the prior factors that contribute the most in explaining the relationship between the prior factors and the PU of the system. The facilitating conditions and managers’ understanding of the system were seen to have significant effect on the PU of the system for annual PDRs by managers (supporting H4a and H3a) and are therefore the variables that contribute the most in explaining the relationship between the prior factors and the PU of the system.
Table 2.2: Multiple regression analysis of Independent variables on Dependent variables

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Unstandardised coefficients</th>
<th>Standardised coefficients</th>
<th>t statistic</th>
<th>Sig level</th>
<th>Adjusted R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>S.E (b)</td>
<td>( \beta )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>-0.054</td>
<td>0.301</td>
<td>-0.143</td>
<td>-0.178</td>
<td>0.859</td>
</tr>
<tr>
<td>Prior Factors</td>
<td>-0.143</td>
<td>0.089</td>
<td>-0.143</td>
<td>-1.603</td>
<td>0.113</td>
</tr>
<tr>
<td>PEOU</td>
<td>0.430</td>
<td>0.096</td>
<td>0.430</td>
<td>4.500</td>
<td>0.000</td>
</tr>
<tr>
<td>PU</td>
<td>0.353</td>
<td>0.098</td>
<td>0.353</td>
<td>3.618</td>
<td>0.001</td>
</tr>
<tr>
<td>Acceptance</td>
<td>0.034</td>
<td>0.184</td>
<td>0.017</td>
<td>0.184</td>
<td>0.855</td>
</tr>
</tbody>
</table>

Note: Hypotheses are supported if variables are significant at \( \leq 0.05 \) level of significance.

While, the data did not confirm H2a and H5a which hypothesised that the training received to use the system and organisational support given to users’ will each be expected to affect the perceived usefulness of the e-KSF for annual PDRs. Haven established the strength of the relationship between a dependent variable and an independent variable with the help of the linear regression analysis a standard ‘multiple regression’ procedure was also conducted in order to identify the construct which significantly predicts the actual use of the system. Both PEOU and PU were identified to be statistically significant determinants of the actual use of the system in this regression model (supporting H7a and H7b, respectively). At the same time, they are shown to be the strongest unique contributors to the prediction of the actual use of the system. In effect, PEOU and PU are the independent variables which contribute the most to explaining the relationship between the independent and dependent variables as depicted on Table 2.2.
Discussion
This study extended the Technology Acceptance Model (TAM) to the context of e-KSF adoption in the NHS in order to critically examine and analyse the determinants of managers’ acceptance and usage of the e-KSF for annual PDRs. In general, most of the hypotheses of the research model were confirmed. The original TAM relationships in relation to the significance of perceived ease of use and usefulness of a new technology as the determinants of whether or not the intended users of the IT system would actually use the technology were confirmed in this study. Both correlation and path coefficients ($\beta$) were high for the relationship between PU and Actual use of the system. Interestingly, a similar finding was observed for the correlation and path coefficients for the relationship between PEOU and Actual use of the system. This is contrary to the TAM model which emphasises the importance of PU over PEOU as a key determinant of users’ acceptance (Schepers and Wetzels, 2006). In effect, the motivational variables of the PU and PEOU fully mediated the effect of the prior factors on actual use of the system. This suggests that the prior factors appear to influence users’ behaviour only through these variables (PEOU and PU) and not through their direct effect on the use of the system.

According to Davis (1993), PEOU may be seen as the part of cost of using the system from the users’ point of view and in the context of the use of the e-KSF for annual PDRs, this has been mostly related to the time it takes to conduct performance appraisals using this system. This is seen as a critical determinant to the actual use of the system as managers mostly pointed out that shortening the process of using the e-KSF, making it less complicated and more user-friendly were critical success factors to the successful adoption and use of the system. For instance some
managers stated that for e-KSF to be successful, affirming that it was simple and easy to use. While other managers believe it’s easy to access, user friendly and not too time-consuming. Surprisingly, organisational support did not have a significant influence on PU and PEOU of the system for annual PDRs as expected. This finding which is contrary to expectation may be related to the fact that the managers laid more emphasis on having a simple and easy to use online appraisal system rather than on the need for organisational support as a way to motivate them to use the system.

Another unexpected finding was that users’ acceptance was not seen to be a predictor of the actual use of the system. This could be due to the limitations of the research model which is designed to examine personal factors but not social and organisational factors. Results from the analysis of response from managers suggests that managers who have higher usage experience perceived lower importance of training towards the PU of the system. While, managers who have lower usage experience will perceive higher importance of training towards the PEOU of the system. As previously highlighted, it will be expected that the effect of training received to use the system by inexperienced users’ on their perceived ease of use will in turn influence their perception towards the usefulness of the system since IT systems which are easy-to-use are also believed to be more useful to intended users (Davis et al, 1989; Gefen and Straub, 2000). In line with this reasoning, this study therefore supports the notion that the training received by users of the system affects the perceived usefulness of system through its role in enabling the intended users to understand how to use the system and how easy it is to use the system for annual PDRs. By achieving this, the users’ would have the opportunity to also build their perceptions of its usefulness to the performance appraisal process in their organisation. Surprisingly,
the findings also indicate that the training received negatively affected their perception of the ease of use of the system which may imply that the training they received did not make the users to perceive the system to be easy to use, which is also expected to influence the way they perceive the system to be useful to the annual PDR process. Hence, the poor e-KSF evidence observed within the NHS organisation studied. This finding can be supported by some answers provided by a manager who stated: “Had received training ...but myself and staff have virtually no idea how to use e-KSF”, and another manager who added that: “Despite having attended training on two occasions I have been unable to align post-outlines or access the tool when I returned to my work place.” While, another manager pointed out that: “As most managers will only use the e-KSF tool annually to record PDRs’ their skills are often lost and need to be updated.”

Based on these responses, some managers suggested the PDRs should be conducted more than once a year, rather than annually and that staff should be re-trained or receive continuous training to use the system at the right time. Thus, this emphasises that the initial training was not enough to make the e-KSF easy to use by managers and their staff. The prior factor ‘facilitating conditions’ was shown to have a significant effect on both PU and PEOU. As expected within the context of performance appraisals in the NHS which is based on the Knowledge and skills framework (KSF) that defines and describes the knowledge and skills required for NHS staff to work effectively and efficiently at their jobs and deliver quality service (Buchan & Evans, 2007), each job is expected to have a KSF post outline that sets out the dimensions, levels and indicators required for the post holder to undertake the job effectively and efficiently. The data of this study supports this as the managers indicated that having the KSF post outlines needed for
PDRs are already contained on the e-KSF website will make them to perceive the e-KSF to be useful and easy to use for PDRs which in turn may make it more likely for the e-KSF to be used for annual PDRs. Building on this, a manager emphasised that for e-KSF to be successful: “It must be properly populated with staff information and including where they are on the pay scales.”

Conclusion
The study found that the managers suggested that more needs to be done with regards to creating an organization-wide awareness of the benefits of the use e-KSF for annual performance appraisal, managing staff performance and the organisation as a whole as an important source of motivation to getting people to use the system for annual PDRs. Furthermore, some managers also pointed out other issues, such as, the level of computer literacy which the use of the system demands from staff members, staff having access to PCs, the fact that e-KSF is a generic tool (thus it fails to meet the requirement of some staff groups), needs to be addressed for a better up-take of the online appraisal system in the NHS.

The study has implications for improved level of use of the e-KSF for annual PDRs in the NHS. Given that past IT studies have suggested that the key barrier to the actual use of IT systems is the users’ lack of accepting the systems, and that users’ acceptance of new technology will lead to the actual use of the system. Yet the results of the present study demonstrates that although users’ acceptance of the new technology is important, the usefulness of the system and the ease of use of the system are even more important and should be largely emphasized and considered in any e-KSF adoption project. In as much as the e-KSF is used in a mandatory setting to which users’ acceptance of the system should be an essential element towards the actual use of the system,
managers may be more willing to use the system for annual PDRs if they find it easy to use and if they perceive the system to be useful to the annual PDR and people management processes in their organisations. This result is also suggestive for the management team of e-KSF adoption to make room for re-training of the users’ of e-KSF at the right time and updating their skills. Given that the initial training received to use the system is not enough to build the desired users’ perception which will lead to the continued use of the system for annual PDRs. Finally, the study suggests that in order to have a successful adoption of the e-KSF in the NHS, early user acceptance testing should be conducted as this could reduce the risk of users’ rejection of the system given the large investment this type of IT project entails. Overall this study provides a foundation for future study on why users’ of the e-KSF in the NHS is the way it is and how to improve the system design to encourage improved users’ acceptance and use of the system.

References


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