

Facilitating Conditions & Intention to Adopt Human Resources Analytics: Independent Predictors & Adoption Level Among HR Professionals and Other Departments' Heads

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ABSTRACT

The HR analytics is not only adopted by the HR professionals but also the heads of other departments. This research aims to investigate the impact of facilitating conditions and human resources adoption intention on human resources adoption level within the Egyptian banking sector. This is explanatory research with a survey strategy to collect data, by sending online questionnaires. Then, the SPSS (version 23) is utilized to analyze the data collected for model validation with 500 responses. The results shows that there is a direct relationship between the facilitating conditions, human resources analytics adoption intention, and human resources analytics adoption level.

Keywords: UTAUT, Human Resources Analytics, Adoption Level, Adoption Intention, Facilitating Conditions

INTRODUCTION

The importance of HR analytics contributes to the strategic success of the company. There is a necessity to inform many personnel groups regarding the processes of HR analytics technology. Ensuring that HR analytics is involved and accepted across the organization is crucial for successful implementation (Ontrup et al, 2023). It was demonstrated by Van den Heuvel & Bondarouk (2016) that HR analytics, by 2025, will likely be unified into central analytics function that exceeds the individual disciplines, demonstrating a joint approach across departments; this combination may lead to HR analytics' shared understanding and utilization, which affect the decision making across many organizational functions instead of being limited to HR only. In addition, it is shown by Sasirekha et al (2024) that the predictive analysis implies that HR professionals may select data driven insights for planning, though heads of other departments might use HR analytics in a different way based on their definite operational needs and objectives; the collaboration across departments may provide effective HR analytics implementation and improved overall business performance (Gupta, 2023; McCartney & Fu, 2022). In addition, it is illustrated by Alirezaei et al (2013) that both facilitating conditions and intention affect the technology adoption in a significant way. For that reason, they are both considered crucial for organizations' successful technology adoption. From the HR department perspective, they view the analytics as crucial for enhancing the recruitment, retention, and employee engagement, which leads to improved organizational performance (Pareek, 2024; Zebua et al, 2024). It is demonstrated by Acharya & Donthu (2024) that HR department are investing in the capabilities of analytic with the purpose of fostering a data driven culture which is vital in aligning human capital with the overall organizational goals. From other departments' perspective, the other departments' heads may not be aware of how the HR analytics can directly affect their operational efficiency and strategic objectives, which may lead to underutilization of data-driven insights within the organization (Ajayi-Nifise et al, 2024).

Problem Identification

Many organizations, including those in Egypt, are facing obstacles in the implementation of the HR analytics technology (Susmita, 2021). The relationship among the facilitating conditions and intention to adopt on the adoption level for the HR analytics technology within the Egyptian banking sector is in a notable gap in the existing research. While many previous studies have discovered these constructs, the interaction among them, as

being independent variables, and their direct effect on the technology adoption level has not been thoroughly investigated; they are considered critical independent variables in understanding the technology adoption level (Ma et al, 2025). In addition, the previous studies have shown the absence of measuring the HR analytics adoption intention on adoption by HR professionals and other departments' heads with the recommendations of tackling the HR analytics technology adoption especially in the banking sector. So, this research is regarded as essential in this context.

Research Questions

- 1- Does UTAUT Framework construct, facilitating conditions, affects the HR analytics adoption level within the Egyptian context?
- 2- What is the overall influence of the HR analytics adoption intention on the HR analytics adoption level within organizations?

Research Objectives

- 1- To examine the impact of facilitating conditions on HR analytics adoption level within the Egyptian Banking Context.
- 2- To assess the overall effect of HR analytics adoption intention on the actual HR analytics adoption level within the Egyptian Banking Context.

Research Significance

This research's main aim is to fill the gap exist in the current literature by investigating the impact of Facilitating Conditions and Human Resources Adoption Intention on Human Resources Adoption Level Among HR and other Departments' Heads. There is Bangladeshi research conducted within the Fitness technology sector showing that both, facilitating conditions and intention to adopt, is considered significant independent variables affecting the level of adoption, highlighting the gap in understanding how these factors exactly influence the technology adoption in the other countries and sectors (Barua & Barua, 2021). Also, it is demonstrated by Pareek (2024) that adoption intention of the HR analytics within the banking sectors showed a notable gap among the HR professionals and other departments' heads, while highlighting the need for HR analytics for enhanced organizational performance. Moreover, it was indicated by Lu et al (2016) that both facilitating conditions and intention to adopt, both are considered integral to overall process related to the technology adoption. In addition, it was shown by Zebua et al (2024) that there is a need for further research to show the difference in perspectives of HR professional and other departments' heads within the banking sector for improved collaborative data driven decision making across different functions. Moreover, it is shown by Acharya & Donthu (2024) that future researchers can explore the comparative intention among the HR professionals compared to other department's heads in the adoption of the data driven HR practices.

LITERATURE REVIEW

Data Analytics and Human Resources Analytics

Data analytics and HR analytics (HRA) serve different purposes within organizations. Data analytics refers to a broad set of techniques used to analyze data across various domains, with the aim of extracting insights to support decision-making. In contrast, HRA focuses specifically on employee-related data to improve workforce management and align HR strategies with overall organizational goals. Therefore, data analytics covers multiple data sources to enhance overall business performance (Saleh et al., 2023), while HRA concentrates on HR-related areas such as recruitment, training, and retention to improve organizational performance (Rashmeet, 2024).

In terms of tools and techniques, data analytics uses a wide range of statistical methods and machine learning techniques that can be applied across different sectors (Saleh et al., 2023). On the other hand, HRA uses specialized models tailored to HR needs, such as regression analysis and clustering, to predict employee turnover and segment workforce needs (Wang, 2024). Regarding outcomes, data analytics aims to improve overall

organizational efficiency and effectiveness, whereas HRA directly impacts talent management, employee satisfaction, and retention strategies. This contributes to positioning HR as a strategic asset rather than a cost center within the organization (Rashmeet, 2024).

According to Rishiraj and Shukla (2024), HRA can be considered a subset of data analytics, as it focuses specifically on human capital management and plays a key role in organizational success. However, other perspectives suggest that the broader applications of data analytics can also significantly enhance HR functions, indicating some overlap between the two fields (Rishiraj & Shukla, 2024).

The choice to focus on HRA instead of the broader concept of data analytics allows for a more targeted examination of the specific challenges and opportunities within HR management in the banking sector, particularly in Egypt. This focus enables the research to better understand how banking professionals use data-driven insights to improve employee engagement and productivity. It also addresses the need for specialized tools and methods tailored to HR functions. Ultimately, focusing on HRA provides more practical and relevant insights for banking organizations, supporting a deeper understanding of how data can be used to optimize HR practices within this context.

Facilitating Conditions “UTAUT Framework Dimension”

Facilitating Conditions (FC) represent a critical dimension within the UTAUT model, referring to the resources and support available to individuals that enable their use of technology. Rohman (2022) defines FC as the organizational and technological infrastructure designed to support system utilization. This construct centers on the availability of resources that bolster adoption and usage; an individual's decision to engage with new technology is heavily influenced by their perception of the accessibility of support services and necessary infrastructure (Ouzif, 2025). Furthermore, the acceptance of new technology relies significantly on a supportive environment, as these conditions have been shown to have a substantial positive effect on information system usage (Oyetade & Zuva, 2025). Technical guidance and professional support facilitate user engagement, making FC a vital component of research models exploring technology integration (Mubuke et al., 2017).

Human Resources Analytics Intention and Adoption Level

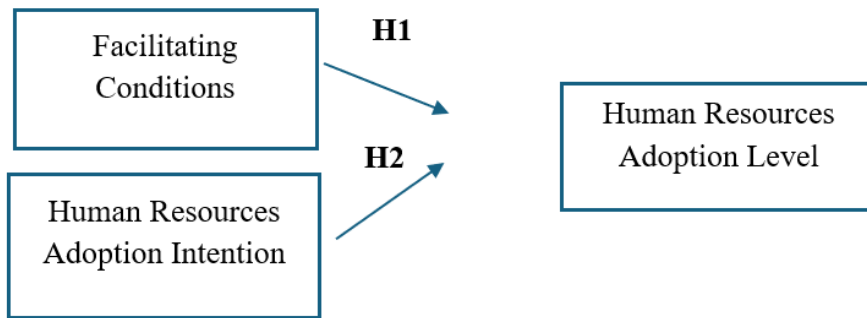
The Human Resources Analytics intention and adoption level between the professionals is affected by different factors. There are key determinants of the adoption in terms of performance expectancy, social influence, effort expectancy, and organizational culture. For the performance expectancy, it is considered one of the significant predictors for the adoption (Moturi et al,2022). For the social influence, it is about the peers and organizational norms' impact that plays a vital role in shaping the intention to adoption the HR analytics (Harlianto et al, 2024; Verma et al, 2024). For the effort expectancy, it is about the degree of ease related to the technology adoption. However, it was shown that it does not affect the usage intention in a significant way, and it is still in consideration. In addition, the organizational culture can help or hinder the transition from the intention to the actual adoption of HR analytics (Harlianto et al,2024; Ekka & Sing,2022).

It was emphasized by Bhati (2024) that HR analytics is considered vital to improve the strategies related to people management; it suggests that HR professionals may be more inclined in analytics leverage within the process of talent acquisition, employee engagement, and retention. However, other departments' heads might adopt analytics to achieve efficiency in their operations. In addition, there is a study showing that HR personnel are more inclined in the adoption of advanced techniques related to analytics because of their direct involvement in the process related to talent management. In contrast to the heads of other departments, who may face challenges in identifying the HR analytics' value within the organization, often make priorities based on their definite operational needs; this considered a gap exist in the necessity for cross-departmental collaboration for a full leverage of HR analytics for more strategic decision making and organizational success (Tuli et al, 2024).

It is believed that the choice to maintain the HR analytics as one of the framework's dimensions, despite its limitations, is due to its potential benefits far outweigh the mentioned limitations or drawbacks. In addition, the insights gained from HR analytics can inform strategic initiatives, boost talent acquisition, and encourage a culture of permanent enhancements within the banking institutions. By addressing the limitations, the researcher will open a door for an exploring solution which can lessen these challenges. Ultimately, addressing the HR

analytics will reflects a forward-thinking approach aligns with global trends within the HR management. Therefore, the research will contribute to both academic discourse and practical applications in a meaningful way within the Egyptian banking industry.

Proposed Research Model



Independent Variable(s)

Dependent Variable

Hypotheses Development

H1: There is a significant relationship between Facilitating Conditions and Human Resources Adoption Level.

H2: There is a significant relationship between Human Resources Adoption Intention and Human Resources Adoption Level.

RESEARCH METHODOLOGY

Measurements of Constructs

To test the research hypothesis, a cross-sectional questionnaire was applied. The items located in the questionnaire were adapted from previous published studies for more content validity. Scale used for human resources analytics adoption intention was taken from Ekka & Singh (2022) and is pilot tested on 27 respondents to ensure that there is no ambiguity present in the HR analytics contest, with Cronbach alpha value greater than 0.70. For the facilitating conditions construct, the scale used was taken also from Ekka & Singh (2022) with Cronbach alpha value equals to 0.714, which is also greater than 0.70. For the human resources analytics adoption level, the scale used is taken from Vargas et al (2018); the scale reliability is assessed by the composite reliability indicator, showing that the reliability score for each item exceed 0.70 threshold thereby showing the construct's items reliability.

Sampling and respondent's profile

This research employs a non-probability sampling technique, especially judgmental sampling, also known as purposive sampling; this is to ensure that every selected individual within the target population is matching the research's criteria. This method is chosen over probability sampling to strengthen the credibility of the findings and improving how well the results reflect the answers of the targeted individuals. By including targeted perspectives from both HR personnel and department heads, the researcher ensures the validity and reliability of the results as they apply to key decision-makers in the industry.

This research used a structured questionnaire to be the tool for collecting data for each variable. Data was collected online through messages sent to the targeted respondents within the banking sector.

The employees' sample with an initial required sample size of 312 respondents, and an additional 281 questionnaires have been distributed, bringing the total number of distributed questionnaires to 593. This approach is intended to account for the expected response rate of 52.65% (Sayad & Diab, 2022)(Easa, 2025) and ensure that the required sample size is achieved.

Population Size Summary

Bank	Junior HR Employees	Senior HR Employees	Number of HR Heads	Other Department Heads	Total
NBE	59	47	5	128	239
Banque Misr	52	35	9	185	281
CIB	32	20	4	343	399
QNB	18	18	10	176	222
Banque du Cairo	19	15	6	249	289
AlexBank	17	9	12	174	212
Total	197	144	46	1,255	1,642

Source: LinkedIn Premium

Sample Selection and Calculation

Based on the previously presented population size information, the sample size is determined as follows:

- 1) Confidence Level (Z) = 95%
- 2) Margin of Error (E) = 5%
- 3) Estimated proportion (P) = 50% (to maximize sample size)
- 4) Population Size (N)= 1,642

The sample size for the HR employees is calculated using the following formula proposed by Molina (2022):

$$n_0 = (E(Z^2) \cdot P \cdot (1-P)) / E^2$$

$$= 384.16$$

Adjusting for the finite population (N):

$$n = (n_0 \cdot N) / (n_0 + N - 1)$$

$$= 384.16 \cdot 1,642 / (384.16 + 1,642 - 1) = 311.4 \approx 312.$$

The total sample size is 312 at a 95% confidence level with a 5% margin of error.

Statistical Analysis and Results

Respondents' Demographics

Most of the respondents were Males, in their 30s, with more than 16 years' of experience within the Banking Sector, and less than 5 years in their current position, with bachelor's degree as being their current education level. In addition, most of the respondents are currently working as department heads (all except HR).

Descriptive Statistics for Research Variables

No.	Statements	Mean	SD	CV
FC1	I have the necessary resources to use HRA	3.66	.788	21.53
FC2	HRA is compatible with other systems that I use	3.67	.801	21.83
FC3	A specific person or group is available for assistance with difficulties concerning the use of HRA.	3.66	.791	21.61
Total		3.6647	.75691	20.65

Human Resources Analytics Adoption Intention

No.	Statements	Mean	SD	CV
HRAAI1	I intend to use HRA as often as needed	3.78	.940	24.87
HRAAI2	Whenever possible, I intend not to use the HRA	4.08	.991	24.29
HRAAI3	To the extent possible, I would use the HRA frequently	3.58	.749	20.92
Total		3.8127	.68982	18.09

Human Resources Analytics Adoption Level

No.	Statements	Mean	SD	CV
AL1	My company has policies in place supporting the use of HR Analytics	3.76	.676	17.98
AL2	I started exploring HR Analytics	3.59	.723	20.14
AL3	Using HR Analytics is interesting to me	3.88	.688	17.73
AL4	My company should invest in HR Analytics	3.84	.749	19.51
AL5	I applied HR Analytics to some of my tasks	3.56	.756	21.24
Total		3.7280	.57824	15.51

Item Loadings (Maximum Likelihood Estimation)

Reliability and Intrinsic Validity for Research Variables

Variables	No of items	Reliability coefficient	Intrinsic validity
Facilitating Conditions	3	.951	0.975
Human Resource Analytics Adoption Intention	3	.846	0.919
Human Resources Analytics Adoption Level	5	.863	0.928
Total	36	.976	0.987

Discriminant validity for Research Variables

Variables	Items	Estimate λ	t-test	CR	AVE
Facilitating Conditions	FC1	0.846	-	0.840	0.638
Human Resource Analytics Adoption Intention	HRAAI1	.847	-	0.857	0.750
	HRAAI3	.885	25.486***		
Human Resource Analytics Adoption Level	AL1	.738	-	0.862	0.559

Regression: Using Maximum Likelihood Estimates for H1 and H2

Path			Estimate	S.E.	C.R.	P-value
Human Resources Analytics Adoption1	<---	Human Resources Analytics Adoption level	.848			
Human Resources Analytics Adoption2	<---	Human Resources Analytics Adoption level	.825	.030	27.610	0.001
Human Resources Analytics Adoption3	<---	Human Resources Analytics Adoption level	.798	.032	24.007	0.001
Human Resources Analytics Adoption4	<---	Human Resources Analytics Adoption level	.848	.033	25.012	0.001
Human Resources Analytics Adoption5	<---	Human Resources Analytics Adoption level	.849	.032	23.150	0.001

Kaiser-Meyer-Olkin Measure

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) for sufficiency of sampling must be more than 0.50 or equal. Barlett's test of sphericity provides indications about whether the correlation matrix is an identity

matric, that would signify that the variables are unrelated. The significance level provides the test's result. Very small values (less than 0.001) reveal that there is a probably significant relationship among the variables.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.953
Bartlett's Test of Sphericity	Approx. Chi-Square	22523.108
	Df	630
	Sig.	.000

Pearson correlation Matrix

There are **significant positive** linear relationships between the variables of Facilitating Conditions, Human Resource Analytics Adoption Intention, and Human Resources Adoption Level

Variable	Human Resources Analytics Adoption Level
Facilitating Conditions	0.836**
Human Resources Analytics Adoption Intention	0.853**

Based on the results, both the facilitating conditions and adoption intention are significant positive predictors of human resources analytics adoption level. The adoption intention contains the larger coefficient, showing a stronger association with achieving higher adoption level. The high values of both predictors indicate greater likelihood for high adoption level.

DISCUSSION

For the Research Hypothesis (H1): “There is a significant relationship between Facilitating Conditions and Human Resource Analytics Adoption Level”

It has been illustrated by Quasar et al (2024) that there is a significant positive relationship among the UTAUT framework constructs, including facilitating conditions, and the HR analytics adoption level; the findings' similarities could be due to the predominantly of the male respondents and the financial nature. In addition, it was shown by Aljojo & Alsuhami (2020) that there is a direct significant relationship between only two constructs of UTAUT framework, one of them was the facilitating conditions. Therefore, H1 has been supported.

For the Research Hypothesis (H2): “There is a significant relationship between Human Resource Analytics Adoption Intention and Human Resource Analytics Adoption Level”

It has been demonstrated by Ekka and Sing (2022) that there is a **significant positive** influence between the HRA adoption intention on the HRA adoption level, which support the findings of this research's study ; this provides a validation to the UTAUT theory's original idea (Venkatesh & Davis, 2003) As mentioned in H3 discussion part that the matches between Ekka and Sing (2022) findings and this research results can be due to the similarity of some of the demographics factors, such as most of the professional working in their 30s and 40s age range. In addition of the workers field, the industry is the financial services, since most of the employees in Ekka and Singh's (2022) findings were from the financial services sector.

In addition, this research results are also consistent to those of Alam et al. (2020). As, it also showed that there is a significant direct relationship between the intention and adoption level as highly influential as positive. Such similarity also might be explained by demographics factors similarity, notably the most respondents in both studies were male professionals aged in their 30s and 40s. **Therefore, the hypothesis (H2) has been supported.**

Implications For Research

This research provides notable insights into the HR analytics technology adoption, mainly regarding the perceptions of both HR professionals and heads from other departments. Regardless of what has been demonstrated by Vargas et al (2018) and Marler & Boudreau (2017) that the adoption rate remains low regardless of the evidence suggesting HR analytics' positive effects. In addition, the research contribution of the other

departments' heads is addressing the gap mentioned by Tuli et al (2024), showing that there is a necessity to focus on the full leverage of HR analytics to contribute more to strategy decision making. Therefore, the research aims to fill this gap in the literature within Egyptian context.

Implications For Practice

This research has a crucial practical implication for the banking sector. It emphasizes the significance of both facilitating conditions and intention to adopt in developing HR analytics adoption level among HR professionals and heads of other departments within the bank. First, by improving the facilitating conditions, banks should focus on establishing working environment that supports HR analytics adoption, including investments in the necessary resources needed such as infrastructure and technical support. By this, the employees will have the tools needed, which can contribute to the reduction of adoption barriers. In addition, the existence of pilot programs, in terms of testing the technology, will affect the employees' intention. As, the positive experiences within the trials can improve the employees' intention to adopt on larger scale. By taking into consideration those options, banks can improve adoption level of new HR analytics technologies in the banking sector.

Recommendations and Action Plan

What	Why	How	Who	When	Where
Recommendation 1: Improve facilitating conditions through infrastructural support	facilitating conditions has a significant positive effect on adoption	provide technical infrastructure, continuous IT support, and access to analytics platform	IT Department	Medium-term (6-12 months)	All bank branches, especially HR, IT, and operational departments
Recommendation 2: Strengthen adoption intention	Intention has a significant positive relationship on adoption	design awareness campaigns and behavioral prompts to increase intention before implementation through internal communication and success metrics	HR development unit	Short-term (0-6 months)	All departments
Recommendation 3: Tailor training based on demographics factors: experience & age	majority are in their 30s (42.8%) and have high experience (11+ years), but 60.6% have low position tenure (	provide differentiated training: such as basic trainings for new-role employees, and advanced analytics trainings for experienced staff	HR training unit	medium-term (6-12 months)	All departments
Recommendation 4: Focus on non-HR department heads for adoption expansion	majority of respondents are non-HR department heads (61.2%), meaning that adoption must extend beyond HR	introduce cross-functional HR analytics dashboards tailored for department heads	HR + learning & development	medium to long term (6-24 months)	All departments
Recommendation 5: Promote advanced education and continuous learning	majority hold bachelor's degrees (72.6%), indicating potential need for advanced analytical skills	offer certifications, workshops, and partnerships with academic institutions in HRA knowledge	HR + External training providers	long-term (12-24 months)	Organizational Level

Limitations and Future Work

Despite the significant results, this research acknowledges several limitations. First, the geographical constraints as the research is limited to the Cairo region. While Cairo is the primary banking hub, this focus may limit the generalizability of the results to other regions where HR practices and technological readiness may vary. Second, the time horizon; due to time constraints, a cross-sectional design is adopted rather than a longitudinal one. This provides a "snapshot" of adoption rather than tracking the evolution of behavior over time. Third, the quantitative focus, as the research relied heavily on quantitative methods. While this allowed for broad statistical generalization, it may not have captured the deeper, qualitative nuances of individual professional experiences. Additionally, this research uses a non-probability sampling technique, specifically the judgmental sampling approach. While this method is effective in selecting respondents with relevant knowledge and experience in HRA, it may lead to selection bias. Moreover, the reliance on self-administered questionnaires is considered another limitation despite its efficiency in reaching employees; however, it may also affect the accuracy and reliability of the collected data.

Future studies may consider expanding the geographical scope to include other regions, which would improve the generalizability of the results. Adopting a longitudinal research design would also allow researchers to examine changes in HRA adoption over time. Furthermore, using a mixed-methods approach that combines both quantitative and qualitative techniques could provide deeper and more comprehensive insights.

DECLARATIONS

No conflict of interest exists

In the online survey's introductory section, the targeted participants were informed about the primary study purpose which is for academic research. This provided paragraph, "Dear Participants, thank you for taking the time to participate in this survey, which is part of my PhD thesis research. The main purpose of this study is to explore the relationship between the facilitating conditions and intention to adopt on the adoption level of Human Resource Analytics (HRA) in the Egyptian banking sector. Your insights and experiences as banking professionals are invaluable to this research. By contributing to this study, you will help enhance our understanding of the factors influencing HRA adoption and support the development of effective strategies for its implementation. Your responses will be kept confidential and used solely for academic purposes. Thank you for your contribution to this important research", served not only to show the intention of the survey but also to imply that their participation would be confidential and only for academic purposes. By continuing to answer the questionnaire questions, participants provide consent by contributing their responses, recognizing that their input would be used merely for academic purposes.

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APPENDIX

Variable	Scale Items	References
Facilitating Conditions	FC1: I have the necessary resources to use HRA FC2: HRA is compatible with other systems that I use FC3: A specific person or group is available for assistance with difficulties concerning the use of HRA.	Ekka, S., & Singh, P. (2022). Predicting HR Professionals' adoption of HR Analytics: an extension of UTAUT model. <i>Organizacija</i> , 55(1), 77–93.
HR Analytics Adoption Intention	HRAAI1: I intend to use HRA as often as needed HRAAI2: Whenever possible, I intend not to use the HRA HRAAI3: To the extent possible, I would use the HRA frequently	Ekka, S., & Singh, P. (2022). Predicting HR Professionals' adoption of HR Analytics: an extension of UTAUT model. <i>Organizacija</i> , 55(1), 77–93.
HR Analytics Adoption Level	AL1: My company has policies in place supporting the use of HR Analytics. AL2: I started exploring HR Analytics. AL3: Using HR Analytics is interesting to me. AL4: My company should invest in HR Analytics. AL5: I applied HR Analytics to some of my tasks.	Vargas, R., Yurova, Y. V., Ruppel, C. P., Tworoger, L. C., & Greenwood, R. (2018). Individual adoption of HR analytics: A fine grained view of the early stages leading to adoption. <i>International Journal of Human Resource Management</i> , 29(22), 3046-3067.