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Deriving Organisational Business Process Change Factors using the Hierarchical Elicitation Workshop

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Abstract

The hierarchical elicitation workshop is a new initiative designed and developed to address common shortcomings in business process change initiatives in organisations, particularly those with tight temporal constraints imposed by exogenous bodies. This paper presents a systematic solution to deal with dramatic BPC under tight temporal constraints in large business and government organisations. In an empirical case study, the hierarchical elicitation workshop is developed and trialed. Based on the Software Engineering Institute's Quality Attribute Workshop methodology, a step-by-step process was carried out to elicit and validate the required BPC factors. Engaging internal stakeholder teams to consider implications for BPC with respect to factors such as organisational objectives and strategies, governance, business process architecture and applications, a prioritised list of change actions was systematically elicited and then implemented. The HEW framework and process was successfully applied to elicit BPC factors in this case study, with an immediate and effective implementation of process change. This paper will be of particular interest to researchers of change management and business development.

Keywords: Business Process Change, Business Models, Change Management, Hierarchical Elicitation Workshop (HEW).

Article type: Research paper

1. Introduction

Business process change (BPC) is used to bring about radical, incremental or continuous changes in the working mechanisms of organisations, with the help of IT applications (Hansen, Gann, & Groak, 1998; Jurisch, Cuno, Palka, Wolf, & Krcmar, 2012; Reijers & Mansar, 2005). The task of facilitating effective change can be a challenge for the government sector, not least when it comes to enhancing capabilities by introducing new IT applications to re-engineering processes in its operations (Grover & Otim, 2009; Harmon, 2014; Luo & Alex Tung, 1999; Stemberger & Jaklic, 2007). Some government sector organisations are reluctant to adopt technology in carrying out tasks such as BPC (Pateli & Philippidou, 2011). While a recent survey by Jurisch, Ika, Wolf, and Krcmar (2013) shows increasing of BPC project implementations in the public sectors. Although the concept of e-government is accepted and practiced in several countries around the world, its adoption and practice, particularly in developing countries, is often viewed as risky (Heeks, 2003; ITU, 2011; Jurisch, Rosenberg, & Krcmar, 2016; Scholl, 2003). To ensure BPC success, an organisation requires good technical and managerial skills and a significant amount of people who are willing to use information system services (Cameron & Green, 2015; Langer, 2017; Prattipati, 2003). Contextual considerations are also important while implementing strategies, such as the culture of the place where e-government is being implemented, and the legal and political structure of the state (Martinsons & Davison, 2007; Nair, Kuppusamy, & Davison, 2005; Niehaves, Plattfaut, & Becker, 2013).

2. Research motivations

Resolving business process change decisions (BPCDs) in an organisation under tight temporal constraints imposed by exogenous authorities is a critical task (Vakola & Rezgui, 2000; Zellner, 2013).

It is made more difficult by the current lack of a systematic foundation in BPC models that incorporates well-defined factors (Majed Al-Mashari, Irani, & Zairi, 2001; Jurisch et al., 2016). A hierarchical BPC factor elicitation workshop framework and process to facilitate a successful BPC implementation is vital (Cardoso, Almeida, Guizzardi, & Guizzardi, 2013; Paul, Yeates, & Cadle, 2014), yet thus far unavailable (Sikdar & Payyazhi, 2014).

The Hafiz Program in the Kingdom of Saudi Arabia (KSA) was selected as a case study to formulate and test the newly developed BPC factor Hierarchical Elicitation Workshop (HEW) framework to use in BPC implementations. The Hafiz Program is an initiative for resolving growing unemployment problems by providing financial incentives for genuine job seekers (Al-Harbi, 2012; Aluwaisheg, 2012). Hafiz is an Arabic word for ‘incentive’ and the program provides a living allowance for citizens who are job seekers until they are employed. The program is accessed via a fully automated portal and services a huge pool of applicants totalling more than two million at any time. The Ministry of Labour was asked by a cabinet decree order to implement specific BPC interventions in less than three months to address unemployment welfare challenges. Thus, the project was set on an aggressive BPC path, with the ministry being under complex constraints to address challenges within short temporal dimensions that we refer to in this paper as tight temporal constraints (or TTCs).

Lack of an existing systematic BPC factor elicitation method is foreseen as an issue in BPC theory (Jurisch et al., 2012; Jurisch et al., 2016; William J Kettinger & Teng, 1998; Paul et al., 2014; Sikdar & Payyazhi, 2014). In addition, a process to rapidly determine the sources of impediments to change facing a large government organisation, where the time for BPC is critical, was not suitable in the literature.

This paper presents a systematic workshop methodology designed to allow organisations to succeed with the dynamic changes in their daily business process routines (Adesola & Baines, 2005; Davenport, 1993; Grover & Kettinger, 2000; Zellner, 2011). Called the ‘Business Process Change Factors Hierarchical Elicitation Workshop’ (HEW), it allows an organisation to frame the BPC factors through a systematic elicitation workshop with minimal effort, thereby smoothing the path for efficient execution of BPC implementation under TTC (Chakraborty, Sarker, & Sarker, 2010). From the observations of this case study, most organisations in this operating context would face similar challenges in reacting optimally. Investigation into BPC processes in comparable organisations revealed that there was a common lack of systematic methodology to deal with prompt BPC action in TTC cases.

In this empirical case study, we used the Hierarchical Elicitation Workshop (HEW) as the first step to create our novel Hierarchical Change Management Structure (HCMS) framework, the details of which will be the subject of a following paper. This paper presents the initial steps of the case study and, as an introduction to the study, outlines the use of the HEW and its results. In the remainder of this paper, section 2 reviews the literature on BPC decision making and decision quality. Section 3 proposes the HEW framework and explains its methodology (process). Section 4 illustrates the developed framework phases and the workshop outcome. Finally, section 5 provides concluding remarks including a summary of findings, practical implications, research limitations and recommendations for future work.

3. Review of literature

3.1. Business process change decision making

In the current environment, the business manager is not directed to a suitable configuration of business processes by the prevailing business process models and management approaches, although decision support systems have a significant role (Harmon, 2014; Pateli & Philippidou, 2011). Numerous external factors can influence change on business processes, e.g. innovative technologies, compliance with industry standards and government rules, changes in the business field, competitive environment, shareholders’ needs, or economic factors pertaining to globalisation (M. Al-Mashari & Zairi, 1999; Amiyi, 2012; Bandara, Gable, & Rosemann, 2005; Fan & Zhao, 2017; Goedertier & Vanthienen, 2006;

Grover & Otim, 2009; Jurisch et al., 2012; Kaplan, Murdock, & Ostroff, 1991; William J Kettinger & Teng, 1998; Neumann, 2014; Wang, Medaglia, & Zheng, 2017).

A change in operating environment may lead to various changes in business strategy, ranging from the launch of small scale automation to mechanisation of an entire process (Soffer, 2005; Thomas, 2008; Wu, Straub, & Liang, 2015). Many such changes are imposed by exogenous entities including government, regulatory entities and industry standards (Neumann, 2014). The lack of a rigorous decision model and process for BPC introduces ambiguity and lack of clarity surrounding determination of requisite business changes (Afflerbach, Bolsinger, & Röglinger, 2016; Amiyo, 2012; Grover & Otim, 2009; Hiatt & Creasey, 2012). In these cases there can be a failure to deal effectively with factors such as limitations in the decision-making authority of those in leadership roles, uncertainty of flow-on effects of decisions on subsequent business processes (Ariouat, Hanachi, Andonoff, & Benaben, 2017), likely relationships between process goals and change decisions (Alotaibi & Liu, 2017; Kavakli & Loucopoulos, 1999; Rausch & Anderson, 2011), and limitations of those decisions (Afflerbach et al., 2016; Habjan, Popovic, & ENGLAND, 2008; Malihi & Aghdasi, 2014; Rinderle, Reichert, & Dadam, 2004).

When there is a change in an organisation, irrespective of the level of change, the capability for swift action to enact that change is a basic requirement for productivity and competitiveness (Cameron & Green, 2015; Goedertier & Vanthienen, 2006; Grover & Otim, 2009; Ploesser, Recker, & Rosemann, 2008). Change efficiency is moderated by an organisation's decision-making processes and hinges on individuals' choices based on trade-off analyses (Kirchmer, 2015; Neumann, 2014). In addition, uncomplicated and straightforward decision-making in organisations is required to reach optimum BPC implementation and to continuously improve services (Luftman, 2015; Malihi & Aghdasi, 2014; Rausch & Anderson, 2011; Vakola & Rezgui, 2000). Therefore, faced with change, organisations benefit from agile decision making and by using a holistic framework that can easily elicit BPC factors (Majed Al-Mashari et al., 2001; Gong & Janssen, 2012; Jurisch et al., 2013; Paul et al., 2014; Sikdar & Payyazhi, 2014).

For process improvement, two levels of BPC have been identified: 'tactical' for process improvement, and 'strategic' for business process reengineering to confront any significant issues or changes imposed by exogenous parties (Bass, Clements, & Kazman, 2012; Jurisch et al., 2012; Thomas, 2008; Zellner, 2011). This classification, however, is too abstract for optimal BPC decisions which rely also on detailed operational information. Further, Sikdar and Payyazhi (2014); Soffer (2004), concentrate on the effect of change in a process. The idea of the span of a change is introduced, including potential for new inputs or outputs to be produced, and pre-conditions and post-conditions for other actions to be set. In this way diagnosis of the limitations of adjustment efforts and effects of internal and external drivers for change can be pinpointed for optimal BPC (Rosenberg, Jurisch, Schermann, & Krcmar, 2014; Škerlavaj, Štemberger, & Dimovski, 2007; Whelan-Berry & Somerville, 2010).

Currently available business process management tools and techniques (such as Appian, ADKAR, ARIS, TIBCO, Oracle and others) do not adequately address the process of decision-making for optimal BPC in which time, cost, application, process and other parameters are quantifiable and measurable (Grgecic, 2011; Hiatt & Creasey, 2012; Jurisch et al., 2012; Kaplan et al., 1991; W.J. Kettinger & Grover, 1995; William J Kettinger & Teng, 1998). For that reason, Amiyo (2012) undertook valuable research that put stress on a utility to develop a platform in which time to reach BPC decisions was enhanced. The platform provided an interactive application implementing decision science concepts such as the generation of alternatives, and selection of an optimal solution (Rausch & Anderson, 2011). The generation of alternatives doesn't necessarily result in convergence into an optimal decision; it is important to implement all the constituents of a decision quality chain to achieve an optimal decision (Matheson, 2005; McNamee & Celona, 2005). The reviewed literature indicates that rigorous decision models for BPC are not well addressed.

3.2. Business process change decision quality

Although BPC is also concerned with introduction of the latest technologies in working environments and integration of jobs in an organisation, its overarching purpose is to fulfil the expectations of customers. Effectively implemented, it gives organisations structure that is flexible, innovative, capable and highly responsive towards its customers (Gong & Janssen, 2012; Harmon, 2014; Jurisch, 2014; Lee, Strong, Kahn, & Wang, 2002). Implementation of BPC results in a number of positives to the organisation, which can include employee empowerment, integration of tasks, and task order flexibility (Chang, Levy, & Powell, 2009; Harmon, 2014; Malhotra, 1998). BPC is used to maximise the production of services that are profitable and modern in nature, reducing unnecessary workloads, and where customers enjoy a single point of contact with a mixture of centralised and decentralised operations as appropriate (Jurisch, 2014).

Business process change procedure is often assisted by qualified BPC consultants (M. Al-Mashari & Zairi, 1999; Jurisch, Palka, Wolf, & Krcmar, 2014; W.J. Kettinger, Teng, & Guha, 1997) to reach optimal outcomes. Consultants provide focus on attaining required results, bring no bias towards decisions taken, understand the working mechanism of the procedure, and serve as a communication channel between key stakeholders (Neumann, 2014; Vakola & Rezgui, 2000). Jurisch et al. (2014) found that more than 50 percent of BPC developments currently used consultants. This low take-up has the potential to lower the capability for success of BPC initiatives. The roles of consultants are decided by the company and may include facilitating roles such as acting as knowledge distributors, or as team members helping other employees carry out procedures correctly (Cadle, Paul, & Turner, 2010; Harmon, 2010; Magutu, 2010; Zigiariis, 2000).

Installation of a BPC factors hierarchical elicitation framework has the potential to be a straightforward solution that will reduce the risks incurred by dependence on external consultants (Neumann, 2014; Paul et al., 2014). Harmon (2014) indicated several conditions under which implementation of BPC strategy could be implemented. These included establishing new infrastructure requirements, establishing networks among prominent working bodies of the organisation, and maintenance of information system applications. Thus, a BPC procedure consists of several steps. First is identification of the current problematic areas and the actions being taken to deal with them, second is identification of the processes requiring changes, and third is implementation of the required changes in those processes (Neumann, 2014).

4. Hierarchical Elicitation Workshop (HEW) and its methodology

In this section, a systematic method for elicitation of the required organisational BPC factors that facilitate the development of a Hierarchical Change Management Structure (HCMS) framework is presented. The exploratory methodology used in this research paper is based on workshop techniques adopted and adapted to this application from the Quality Attribute Workshop (QAW) of the Software Engineering Institute (Barbacci, 2003).

To construct the HCMS framework, business information must be elicited from all levels of an organisation using a systematic and rigorous methodology (Adesola & Baines, 2005; William J Kettinger & Teng, 1998). As such, the HEW was organised to elicit the information systematically by interacting with various stakeholders (Chakraborty et al., 2010; William J Kettinger & Teng, 1998). To simplify the execution of this workshop, we divided the steps into three phases: pre-engagement, on-engagement, and post-engagement. The pre-engagement phase is for the collection of essential preliminary information and documents. The information elicitation workshop constitutes the on-engagement phase, and the post-engagement phase is when the initial HCMS is created and constructed. The post-engagement phase (see Figure 1) and its functions are briefly mentioned in this paper. A separate, forthcoming paper will detail the process of formulating optimal BPC decisions using a computational HCMS framework.

The HEW consists of eight steps, as in Figure 1, and are grouped in three phases, i.e. presentation and elicitation, change management drivers and scenario identification and consolidation and prioritisation arranged to elicit organisational BPC factors information. The first phase consists of four steps, i.e. organisational objectives and strategies, organisational structure and governance, business process architecture and application architecture. The second phase comprises of two steps, i.e. identification of organisational change management drivers and brainstorming of scenario alternatives. The third phase contains of two steps, i.e. scenarios consolidation and scenarios prioritisation. Most of the information is captured in tabular or matrix form to accurately represent the information and its relationships.

The workshop was conducted by the researchers with a change management team (CMT) comprised of stakeholders from different functional groups and hierarchical levels within the organisation (Cadle et al., 2010; Luna-Reyes & Andersen, 2003; Rosenberg et al., 2014; Stufflebeam, 2001). The CMT members were nominated either by their department or the executives, or recommended by other CMT members. The workshop is designed to systematically elicit BPC factors (Luna-Reyes & Andersen, 2003). The expected outcome from this workshop is for the organisation's staff to engage with a formal framework for BPC instead of ad-hoc implementation (Neumann, 2014). It was found that this workshop enabled the CMT to follow easy and well defined steps to conduct process change or smooth the development of BPC implementation without the need to know explicit details or to access staff skilled in business process management (Hiatt & Creasey, 2012; Sikdar & Payyazhi, 2014). Hence, such a workshop can be conducted in any organisation involving different stakeholders without the prerequisite of specific technical and related knowledge (Cadle et al., 2010; Langer, 2017).

5. Hierarchical Elicitation Workshop phases

This section illustrates the three phases that are required to conduct the BPC factors hierarchical elicitation workshop. The process starts with an initial information elicitation phase that gathers the information via CMT members. This on-engagement phase focuses on generating details through presentations, enumeration, driver identification, alternatives generation, consolidation and prioritisation of BPC factors. Information in this section relates to the Hafiz case study introduced earlier. The post-engagement phase is intended to analyse, compute, evaluate, verify and document the HCMS framework. This latter phase will be described here only in sufficient detail to show the relevance of the outputs of the on-engagement phase.

5.1. Initial information elicitation phase

Initial information collected from CMT members that assisted us to construct the workshop includes organisational objectives, structure and governance (Alotaibi & Liu, 2017), vision and mission, strategy, business process architecture, business process to application mapping, organisation performance measurement (OPM) (Huizing, Koster, & Bouman, 1997), and current BPC decision methodology (Kaplan et al., 1991; Paul et al., 2014). In the case study to be described, the initial information helps to depict the Hafiz organisation's BPC processes. Further, it allows us to understand how the organisation works (Cardoso et al., 2013; Paul et al., 2014; Vakola & Rezgui, 2000).

5.2. On-engagement phase

5.2.1. Organisation objectives and strategies presentation:

In this step, the representative of the executives makes a short presentation about the overall organisational goals, vision, mission, critical success factors, tactics, challenges, risks and change drivers. After the presentation, a 10-20-minute question and answer session was conducted with the representative to verify the elicited information. Table 1 documents the objectives, tactics and measures elicited during the presentation at Hafiz, four of which were verified during the subsequent question and answer session. The four elicited objectives as in Table 1 are 'Resolve unemployment problem',

‘Provide training to bridge market demand’, ‘Financial incentive to encourage job seeking’ and ‘Help job seekers to find employment’. Risk related information elicited and evaluated is presented in Table 2. This information comprises the description of the risk, the events triggering the risk, importance and likelihood of occurrence of the risk. ‘System unavailable’, ‘Erroneous candidate evaluation’, ‘Negative ripple effect’, ‘Inability to achieve change objectives’, ‘Quality of data received from agencies’, ‘Delay in receiving data’, ‘Financial funding’ and ‘Technical issues’ are examples of the extracted risks. Table 3 documents the key performance indicators (KPIs) of the organisation. This information includes the context of the indicator, i.e. business, technical, operational, or strategic. It also defines the organisational level where this indicator is measured, and the main objectives of the measurement (Huizing et al., 1997; Vakola & Rezgui, 2000). There were eight identified KPIs such as ‘Registration quality’, ‘Decision quality’, ‘Training quality’, ‘Average complaints resolution rate’, ‘Technical issues resolution rate’, ‘Employment rate due to Hafiz Program number of tickets’, ‘Number of endorsed appeals’, and ‘Number of rejected payments’.

Table 1 Example of Hafiz’s Strategic Objectives Methodology Documentation

Abbr.	Objective	Description	Tactics	Measure
RUP	Resolve unemployment problem	The unemployment rate has grown rapidly recently; this prioritised this issue as number 1	Provide intensive training assistance to find job. Help MOL to create right labour policy to reduce unemployment	National Unemployment Rate (NUR)
TBMD	Provide training to bridge market demand	Basic skills training that the program offers	Conduct qualitative and quantitative gap analysis between skills required by market and job seeker skills	Average Training Requirement (ATRR)
FI	Financial incentive to encourage job seeking	SAR 2000 Saudi Riyals that the program pays monthly to every beneficiary	Use cutting edge processes and technologies to facilitate the evaluation, control and payment processing of job seekers	Incentive to Productivity Ratio (IPR)
HJSE	Help job seekers to find employment	Hafiz Program has gateways to link beneficiaries with private sector job opportunities	Encourage both public and private sectors to publish their job opportunities via Hafiz gateway to match and offer jobs to beneficiaries	Hafiz Assisted Employment Rate (HAER)

Table 2 Example of Hafiz’s Risks Evaluation

Risk	Description	Event	Importance (1=Low-5=High)	Likelihood
System unavailability	The downtime period that the system is off	Technical & environment problem	5	Low
Erroneous candidate evaluation	It’s the wrong evaluation process of a candidate	Coordination problem	5	Medium
Negative ripple effect	An action that cause damage across other processes in the organisation	Decision problem	5	High
Inability to achieve change objectives	The program did not reach the defined objectives	Management	5	High
Quality of data received from agencies	The quality of the data received from government agencies must be accurate or it will not serve the program needs	Coordination problem	5	Medium

Risk	Description	Event	Importanc e (1=Low- 5=High)	Likelihood
Delay in receiving data	The data must be received on time to process.	Timeliness	4	Low
Financial funding	Financial funding must be available to provide job seekers with funds	Budget/ fund issues	5	Low
Technical issues	IT technical difficulties can cause delays or interruptions in service and operation	Technical and operation issues	4	Medium

Table 3 Example of Hafiz’s Key Performance Indicators Enumeration

Indicator	Description	Context	Level	Objective
Registration quality	The output of the registration process	Technical	High	Measure service and data level
Decision quality	The outcome of good decisions output	Management	High	Measure productivity and performance
Training quality	The efficiency level of the training	Human Resources	Mid	Measure the level of the provided knowledge
Average complaint resolution rate	The resolved complaint issues	Call Centre	High	Measure the level of the succeed complaint resolution
Technical issues resolution rate	The resolved technical issues	Technical	High	Measure the level of the solved technical issues
Employment rate due to Hafiz Program	The succeeded employment through Hafiz Program	Management	High	Measure unemployment rate
Number of tickets	Number of technical tickets raised through call centre	Technical	High	Measure service level
Number of endorsed appeals	Number of endorsed/approved appeals in certain period	Management	Mid	Measure the quality of data
Number of rejected payments	Number of rejected payments from banks	Finance	High	Measure the payment method performance

5.2.2. Organisation Structure and Governance:

In this step, the CMT member presents a brief description of the organisational structure and the BPC decision governance. During the presentation, the initial information of Hafiz’s organisational structure and BPC decision governance is verified and documented. More detailed information of the BPC decision governance is documented using Table 4 (see Appendix 8.1.1.), that encompasses the description of each role, its responsibility, manager, and the context of the role, such as executive, business, operational or technical. This step is intended to map the organisation structure to the Hafiz functional structure (see Appendices 8. and 8.5). By obtaining this information, executing BPCs becomes much easier and conflicts are eliminated. All tables mentioned below can be found in the appendices to this paper.

5.2.3. Business process architecture presentation:

In this step, a CMT member presents the organisational business process architecture using a formal representation derived from reputable enterprise architecture frameworks such as The Open Group

Architectural Framework (TOGAF), or John Zachman's Federated Enterprise Architecture (FEA). The first action is to elicit all business processes and document their descriptions, objectives, functional ownerships and importance (see Table 5). Twenty business processes were elicited for example, 'Candidate registration process', 'Candidate approval process', 'Candidate evaluation process', 'Complaints management process', 'Dispute resolution process', 'Beneficiary payment processing' and others. Identification of these business process elements is critical to enable effective mapping to the other elements (Kaplan et al., 1991; Paul et al., 2014; Vakola & Rezgui, 2000). The information rendered from this presentation is documented using two tables (see Tables 6 and 7). Table 6 maps each business process with the risks enumerated in step 1 of the on-engagement phase. The measurement of each business process is documented in Table 7.

5.2.4. Application architecture presentation:

The representative of the IT services department presents the higher-level architecture of the applications used for BPC within the organisation. The representative then enumerates the applications, including description and ownership (Table 8). The enumerated applications are: 'Candidate application processing system', 'Payment training management system', 'Payment processing system', 'Coordination & integration platform', 'Report & data analysis platform', 'Monitoring & control system' and 'Hafiz main portal'. Tables 9 and 10 document all related application architecture information required for the construction of the HCMS. Table 9 maps the applications into functional units that directly or indirectly use them. Table 10 maps the application with the business processes, specifying the relationship between applications and the business processes they are implementing.

5.2.5. Identification of organisation change management drivers:

This step enumerates most of the possible external drivers for BPC. In the Hafiz Program case study, this could be a rise in unemployment rate, new e-government initiatives or political issues. The purpose of generating these drivers is to create the initial HCMS, since the drivers are the cornerstone for the HCMS architecture and execution. In this case study, we concentrated only on external drivers because the focus is on tight temporal constraints imposed by exogenous bodies. However, this can also be used to address internal drivers. Tables 11 and 12 document these drivers. Table 11 enumerates the drivers and documents them by defining the driver and specifying the organisation that triggers the driver. There were twelve identified drivers i.e. 'New government policy for unemployment', 'Economic policy' (Human Capital), 'Complaints against the program', 'Proactive improvement', 'Political issues', 'Social and cultural issues', 'Increase in unemployment rate', 'Coordination with other entities', 'Growth in users and services in Hafiz Program', 'Quality of services', 'Change in executives or management', 'Change in technology and infrastructures'. Table 12 maps each driver with the objectives' business processes. This gives the holistic information on how these drivers could affect the business processes and applications. This information will be verified to meet the 'reliable decision information' that is described with the decision quality chain.

5.2.6. Brainstorming scenario based alternatives generation:

This step uses a scenario brainstorming method to generate the alternatives based on the decision quality chain model. In this section, all CMT members were engaged to generate a list of alternatives for each driver using scenarios. For each scenario both the change triggers and decision scenarios are documented in Table 13. This conforms with the requirement of the decision quality chain, by addressing creative and feasible alternatives, sound reasoning, and commitment to action (Kaplan et al., 1991; Paul et al., 2014). At this step, all the information is captured to fully address the decision quality requirements. In the Scenarios Documentation Template (see Appendix 8.2), for each trigger multiple solution alternatives are defined. The template documents the scenario along with their drivers, and the related business processes that are affected by the scenario. During the process of documenting the related business process, the team specified the type of change required for the business process and

documented on the affect column. This has four possible values: ‘C’ for create new, ‘D’ for delete, ‘U’ for update, and ‘N’ for no change.

5.2.7. Scenarios consolidation:

The scenarios are generated and represented using the tabular templates and Business Process Modelling Notation (BPMN) (see Appendix 3). Similar scenarios are consolidated by another brainstorming session and the facilitator explicitly asks all the CMT members to enumerate a set of scenarios that can be joined together or eliminated due to redundancy. Each candidate set of scenarios to be consolidated is documented using Table 13. After a simple voting process, the scenarios that are qualified for consolidation are joined using a new scenario definition and documented again using Table 14. For instance, expand age benefits, increase the period of benefits and increase training programs scored high priority.

5.2.8. Scenarios prioritisation:

After scenarios are consolidated, they are prioritised using a rigorous voting process. The purpose of the prioritisation is to rank the most important (likely) scenarios while constructing the HCMS. It is labour intensive for large organisations to construct the HCMS from all the scenarios; therefore, the initial HCMS can be constructed from the highly-prioritised scenarios, and implementation of the other scenarios can be deferred and included in a continuous HCMS improvement program. In the voting processes, each member is assigned a ‘voting weight’ that reflects the importance of their decision based on the organisational governance. Table 15 documents the voting weights assigned to each CMT member. Table 16 records the weighted votes of each CMT member, calculated by the member vote multiplied by their ‘voting weight’. A member can vote by assigning minimum 0 and maximum 3. After the voting process, the scenarios are sorted in descending order of their aggregate weighted votes. Based on the organisational constraints that are elicited in the pre-engagement phase, the CMT can select the most highly-prioritised scenarios for immediate implementation and defer the remainder for later implementation. Each scenario represents an alternative decision for the implementation of a BPC for a given business process.

5.3. Post-engagement phase

Post-engagement is intended to analyse, compute, evaluate verify and document the HCMS Framework. The steps include: ‘identify business processes causal relationships’, ‘generate initial HCMS’, ‘construct Causal Analysis Models (CAMs)’, ‘compute HCMS values’, ‘evaluate initial HCMS’, ‘check anomalies’ and ‘document HCMS’.

From the previous phases of initial information elicitation and on-engagement, all the required information is formulated and used in the proposed HCMS Framework needed to execute and compute BPC implementation. The HEW has facilitated the formulation of the HCMS through systematic steps. The HCMS as applied to our case study (Hafiz) is a separate topic and will be described elsewhere.

In summary, the steps conducted by the CMT started with using *exploratory or growth scenarios* to evaluate the initial HCMS and help management to refine changes in scenarios and act proactively before implementing any change management procedures (Hiatt & Creasey, 2012). Moreover, exploratory or growth scenarios allow organisations to stress the system before running any changes or experiencing growth as well as exploring any ramifications to be tackled in early stages. The evaluation of the initial HCMS requires systematic steps to ensure the best output from the existing structure. Consolidating scenarios allows the CMT to prioritise and aggregate scenarios based on their importance to the organisation, and here the same method is used by observing the outputs and changes in the organisation’s business process.

The broad vision of the HEW is to enable organisations to execute BPCs through the Hierarchical Change Management Structure (HCMS). Benefits of HCMS include support to make optimal decisions,

selecting the best alternatives, minimising cost, time, and risk, and maximising quality of service (Reijers & Mansar, 2005).

5.4. Workshop outcome

The main outcome of this research is the formation of a practical BPC factors elicitation procedural methodology (HEW) through well-defined structured steps. The collection of initial information was important and helpful to understand how the organisation might most effectively execute BPC initiatives. The on-engagement phase is the main stage in this workshop where most of the BPC factors were elicited and prioritised. The HEW systematically extracted and prioritised BPC factors such as organisational objectives and strategies, risks, KPIs, governance, business process architecture and applications, change management drivers. Further, engaging internal stakeholder teams, practitioners or managers on the HEW moved from being ad-hoc to a more formalised process. The hierarchy elicitation procedures simplify the required actions to optimise BPC implementations. The advantages were fruitful for the organisation providing a speed up of the business processes, concentration on improvements, enhanced cost effectiveness, and improved efficiency (Rosenberg et al., 2014). This phase conceptualised the BPC ad-hoc tasks to a formal technique (framework) in a sequential flow of steps. This results in fewer mistakes, standardised BPCs, and less dependency on experts for specific knowledge (Andrade, van der Aa, Leopold, Alter, & Reijers, 2016). Further, formalising the process of eliciting BPC factors shifts the focus to enhance the outcomes of the BPC rather than becoming mired in traditional processing (Cardoso et al., 2013). The post-engagement phase is designed to analyse, compute, evaluate, verify and document the executable HCMS framework. The next step is to use the developed HEW framework.

The results of using the HEW framework can be summarised as follows: BPC information collection was standardised; BPC factors were elicited by using a consistent methodology; the CMT found that the procedure reduced ambiguity and uncertainty around elicitation of BPC factors, and reduced time and effort; the framework helped to identify team and department roles and tasks (Cadle et al., 2010). Further, an advantage of the HEW process is that the majority of collected information can be captured electronically in an application or web-executable software.

Figure 1 The Hierarchical Elicitation Workshop Framework

Conclusion

5.5. Summary of findings

Literature on BPC decision-making and decision quality was reviewed and consequently led us to recognise the need for a BPC factors elicitation framework to improve the decisions surrounding BPC implementations. As a result, a novel BPC factors elicitation workshop was designed and conducted that was positively received during the conduct of the Hafiz case study. The associated Hierarchical Elicitation Workshop positively impacted BPC implementation in the organisation. Major findings were that the HEW framework simplified the deriving of BPC factors, the organisation gained a formal

BPC standardisation and elicitation process, knowledge process sharing was enhanced, time and effort was reduced, and BPC roles and responsibilities were clearly identified. Further, the HEW framework systematically structured the BPC elicitation process.

5.6. Practical implications

This new structured framework and process for BPC decision making will enable organisations anywhere to implement high priority changes rapidly and effectively. The applied HEW workshop framework constitutes a substantial improvement in reducing effort, time and resources. The practical workshop method ensures that critical BPC factors are extracted in an efficient and effective manner. Factors such as organisational objectives, strategies, risks, performance indicators, structures, governance, business process architecture and applications including scenarios and alternative prioritisation methodologies were systematically elicited. The framework added value to the applied case study and indicated the potential for this methodology to make a significant contribution to shaping and formulating BPC initiatives in any organisation.

5.7. Research contribution/originality

The developed HEW framework and elicitation methodology is the authors' novel and original contribution to reduce impediments in the BPC domain, particularly where there are tight temporal constraints. The HEW framework is a new adaptation of the Software Engineering Institute's Quality Attributes Workshop methodology. This adaptation improved BPC factor elicitation in a case study and diminishes a gap in literature on this topic.

5.8. Research limitation

This research describes a single case study to present a proof of concept for effective and efficient BPC decision-making in a single organisational context. Proof of concept would be strengthened by application of this innovation in more domains. Further, creating an ontological representation of a hierarchical change management structure to promote cross-organisational HCMS modelling would be an advantage to further validate this framework workshop.

5.9. Recommendations and future work

For future work, we recommend the use of the HEW framework in more empirical cases to validate it in the hierarchical change management structure; creating a HEW execution engine to automate the elicitation processes; and, creating an ontological representation of the HEW framework to promote cross-organisational HCMS framework construction and execution. There will be more research going on in that area.

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6. Appendices

6.1. Tables

6.1.1. Table 4: List of Hafiz's Organisational Functions and Roles

Abbr.	Role	Description	Responsibility	Context
HPM	Hafiz Program Manager	Manage all program issues and	Acts chief executive officer for Hafiz Program	Management
CBO	Chief Business Officer	Managing all business and administration functions	is responsible for the administrative, financial management of the organisation	Administration and financial
COO	Chief Operation Officer	Handling operation functions	Responsible Day to day for development, design, operation, and improvement of the systems	Operation
CTO	Chief Technology Officer	An executive position whose manage and address technical issues that a company faces	Responsible is to manage and address all technical issues in	Information Technology
SBA	Senior Business Architecture	Provides business architecture, change/transition management, consultation, facilitation, senior analysis, and project management	Responsible of all business architect aspects that the entity has	IT, Management
BPMO	Business Process Officer	Manage and monitor business process activities	In charge of all business process actions and monitoring	Management
SOM	Senior Operation Manager	Cover and manage all operation aspects	Supervise all operation activities	IT
QAO	Quality Assurance Officer	Supervise the quality of the whole processes.	creates, implements and manages business quality control system	Management
CEA	Chief Enterprise Architect	arrange strategy, processes and IT assets	Aligns all functions and processes	Management, IT
STM	Senior Technology Manager	Supervise IT aspects	Responsible for the related IT duties	IT

6.1.2. Table 5: List of Hafiz's Business Processes Mapped with its Objectives, Functional and Importance

Abbr.	Business Process	Description	Objective	Functional ownership	Importance (1=Low-5=High)
CRP	Candidate Registration Process	This BP is responsible for the initial registration of Hafiz beneficiaries.	RUP	Application Processing	4
CEP	Candidate Evaluation Process	To evaluate the eligibility of the applicant	RUP	Application Processing	5
CAP	Candidate Approval Process	The full approval process to approve candidate	RUP	Application Processing	5
GOSIP	GOSI Coordination Process	General Organisation for Social Insurance integration	RUP	Coordination	5
MLP	MOL Coordination Process	Ministry of Labour integration	RUP	Coordination	5
MIP	MOI coordination Process	Ministry of Interior integration	RUP	Coordination	5
MCIP	MCI Coordination Process	Ministry of Commerce and Industry integration	RUP	Coordination	5
MFP	MOF Coordination Process	Ministry of Finance integration	RUP	Coordination	5
MHEP	MOHE Coordination Process	Ministry of Higher Education Integration	RUP	Coordination	3
BTP	Beneficiary Training Process	The entire training process	TMBD	Training	4
MCP	Monitoring and Controlling Process	The entire process to check all the activities	RUP	Control	5
SGAP	Skill Gap Analysis Process	The rate of how many beneficiaries acquired job chance	RUP	Data Analysis	5
BPP	Beneficiary Payment Processing	The process of delivering the payments	FI	Payment	5
DPP	Deduction & Penalty Processing	The legitimacy process	FI	Payment	4
CMP	Complaints Management Process	The process of controlling complaints	RUP	Control	4
DRP	Dispute Resolution Process	The process of controlling disputes	RUP	Control	4
RMP	Report Management Process	The process of managing reports	RUP	Report	4
OCP	Organisation Coordination Process	The process of coordination	RUP	Coordination	5
JMP	Job Matching Processing	The process of matching job	RUP, HJSE	Control	4
ESR	Enhance student's ineligibility reason	Improving the ineligibility reason for students to specify which university they are still recorded in	RUP, HJSE	Control	4

6.1.3. Table 6: Hafiz's Business Processes and Risks Mapping Matrix

Risk	System unavailability	Erroneous candidate evaluation	Negative ripple effect	Inability to achieve change objectives	Quality of data received from agencies	Delay in receiving data	Financial funding	Technical Issues
Business Process								
Candidate Registration Process	1	2	2	3	0	0	0	2
Candidate Evaluation Process	1	2	2	3	2	2	0	3
Candidate Approval Process	1	2	2	3	2	2	4	3
GOSI Coordination Process	1	0	3	2	1	1	0	3
MOL Coordination Process	1	0	3	2	1	1	0	3
MOI coordination Process	1	0	3	2	1	1	0	3
MCI Coordination Process	1	0	3	2	1	1	0	3
MOF Coordination Process	1	0	3	2	1	1	0	3
MOHE Coordination Process	1	0	3	2	1	1	0	3
Beneficiary Training Process	0	0	4	2	0	0	4	0
Monitoring and Controlling Process	2	2	2	2	3	1	0	2
Skill Gap Analysis Process	2	0	3	1	4	3	0	4

Risk	System unavailability	Erroneous candidate evaluation	Negative ripple effect	Inability to achieve change objectives	Quality of data received from agencies	Delay in receiving data	Financial funding	Technical Issues
Business Process								
Beneficiary Payment Processing	3	0	2	2		2	1	2
Deduction & Penalty Processing	3	0	4	3	2	3	3	3
Complaints Management Process	0	3	3	4	2	3	3	3
Dispute Resolution Process	5	3	3	4	2	0	0	4
Report Management Process	3	5	3	4	0	0	0	5
Organisation Coordination Process	1	0	1	1	0	0	0	1
Job Matching Processing	4	2	2	1	3	4	5	4
Enhance students' ineligibility reason	2	3	4	1	3	2	5	4

6.1.4. Table 7: Hafiz's Business Process and Key Performance Indicators Mapping Matrix

Performance Indicator Business Process	Registration Quality	Decision Quality	Training Quality	Average Complaint Resolution Rate	Technical Issues Resolution Rate	Employment Rate due to Hafiz	Number of Tickets	Number of endorsed Appeals	Number of Rejected Payments
Candidate Registration Process	1	0	0	4	3	4	4	3	0
Candidate Evaluation Process	2	1	0	5	0	2	4	3	0
Candidate Approval Process	2	1	0	5	4	2	3	3	0
GOSI Coordination Process	1	2	0	5	3	3	6	0	0
MOL Coordination Process	1	2	0	5	3	3	6	0	0
MOI coordination Process	1	2	0	5	3	3	6	0	0
MCI Coordination Process	1	2	0	5	3	3	6	0	0
MOF Coordination Process	1	2	0	5	3	3	6	0	0
MOHE Coordination Process	1	2	0	5	3	3	6	0	0
Beneficiary Training Process	2	4	1	4	4	2	6	0	0

Performance Indicator Business Process	Registration Quality	Decision Quality	Training Quality	Average Complaint Resolution Rate	Technical Issues Resolution Rate	Employment Rate due to Hafiz	Number of Tickets	Number of endorsed Appeals	Number of Rejected Payments
Monitoring and Controlling Process	3	3	0	0	1	4	0	0	0
Skill Gap Analysis Process	6	2	1	0	0	1	0	0	0
Beneficiary Payment Processing	0	3	0	0	0	1	0	0	1
Deduction & Penalty Processing	0	3	0	4	3	3	1	1	5
Complaints Management Process	2		0	1	0	0	0	1	0
Dispute Resolution Process	3	2	0	1	4	3	4	1	4
Report Management Process	4	3	0	4	4	4	5	5	7
Organisation Coordination Process	3	1	4	5	3	2	4	4	0
Job Matching Processing	0	2	3	4	6	1	5	0	0
Enhance students' ineligibility reason	2	3		5	5	1	3	4	0

6.1.5. Table 8: List of Hafiz's Application Information

App. Abbreviation	Application name	Description	Ownership
CAPS	Candidate Application Processing System	Process applications system	Application processing
TMS	Training Management System	Provide training	Training
PPS	Payment Processing System	Process payment	Payment processing
CIP	Coordination & Integration Platform	Link Hafiz Program with the agencies	Coordination
RDP	Report & Data Analysis Platform	Maintain reporting and analysis	Reporting
MCS	Monitoring & Control System	Monitoring system	Control
HMP	Hafiz Main Portal	Host applications	Data analysis

6.1.6. Table 9: Hafiz's Application and Functional Ownership Mapping Matrix

Application Name	CAPS	TMS	PPS	CIP	RDP	MCS	HMP
Functional Structure							
Application Processing	1	6	4	3	5	4	6
Data Analysis	2	4	6	5	4	3	7
Control	1	5	2	2	2	4	4
Training	6	1	7	0	5	3	3
Coordination	2	6	3	1	4	3	5
Payment Processing	4	0	1	2	3	3	5
Reporting	3	1	4	5	1	3	3

6.1.7. Table 10: Hafiz's Application and Business Process Mapping Matrix

Application	CAPS	TMS	PPS	CIP	RDP	MCS	HMP
Business Process							
Candidate Registration Process	3	0	0	0	7	7	4
Candidate Evaluation Process	4	0	0	1	7	7	5
Candidate Approval Process	1	0	7	3	4	6	3
GOSI Coordination Process	4	0	0	1	4	3	0
MOL Coordination Process	4	0	0	1	4	3	0
MOI coordination Process	4	0	0	1	4	3	0
MCI Coordination Process	4	0	0	1	4	3	0
MOF Coordination Process	4	0	0	1	4	3	0
MOHE Coordination Process	4	0	0	1	4	3	0
Beneficiary Training Process	0	1	0	5	3	2	6
Monitoring and Controlling Process	2	3	6	1	3	1	6

Application	CAPS	TMS	PPS	CIP	RDP	MCS	HMP
Business Process							
Skill Gap Analysis Process	2	2	0	5	5	5	0
Beneficiary Payment Processing	4	0	1	5	4	4	0
Deduction & Penalty Processing	5	0	1	2	3	3	0
Complaints Management Process	1	2	1	1	3	4	3
Dispute Resolution Process	5	4	2	4	3	4	4
Report Management Process	4	5	4	4	3	4	5
Organisation Coordination Process	2	8	4	1	4	4	3
Job Matching Processing	4	1	0	3	3	3	4
Enhance students' ineligibility reason	3	0	2	3	3	2	0

6.1.8. Table 11: List of Hafiz's Organisational Change Management Drivers

Drivers	Description	Entity
New government policy for unemployment	Orders from the King or the Cabinet to change or solve the unemployment	Saudi Government
Economic policy (Human Capital)	Any update or change policies that imposed from the Cabinet	Ministry of Finance, Ministry of Economic and Planning
Complaints against the program	Criticisms or complaints from the public or the beneficiaries	Ministry of Labour
Proactive improvement	The continuation to improve the services	Hafiz Program
Political issues	The act to achieve public aspirations	Saudi Government
Social and cultural issues	The act to solve common public and culture issues	Saudi Government and Citizens
Increase in unemployment rate	That due to decrease of job opportunities or GPI etc...	Saudi Government, Ministry of Labour
Coordination with other entities	To exchange citizen's information	General Organisation for Social Insurance, Ministry of Labour, Ministry of Interior, ...
Growth in users and services in Hafiz Program	The increase of unemployment rate	Hafiz Program
Quality of Services	The advancement to deliver good service that satisfy the customers	Ministry of Labour
Change in executives or management	The change of positions or strategies due to new management	Ministry of Labour, Hafiz Program
Change in technology and infrastructures	The demand to upgrade or enhance of new technology to continue the service	Technology trends and vendors

6.1.9. Table 12: Hafiz's Organisational Change Management Drivers Impact Mapping Matrix

Drivers	Objective	Business Process
Government policy	Solve unemployment rate through intensive fund	Registration Process Approval Process Payment Processing
Economic policy	Decrease fund due to decline income	Payment Processing
Complaints	Solve complaints	Monitoring and Controlling Process Complaints Management Process
Improvement	Improve service	Improvement process
Political issues	Decrease unemployment rate	Beneficiary Training Process Skill Gap Analysis Process
Growth in unemployment	Offer jobs and opportunities	Beneficiary Training Process Skill Gap Analysis Process
Coordination	Improve data quality	Improvement process
Service and users' growth	Improve services to accommodate the growth of users	Improvement process
Quality of services	Satisfy users	Monitoring and Controlling Process
Management change	Improve services	Improvement process
Technology Dynamics	Improve services	Improvement process

6.1.10. Table 13: Linking of Hafiz's Organisational Change Management Drivers with Business Process Scenarios

#	Drivers	Scenarios	
1.	Government policy	1.1.	Cutting budget from Hafiz Program
		1.2.	Increase the period of benefits
		1.3.	Increase or decrease beneficiaries age range
2.	Economic policy	1.4.	Decrease government income
		1.5.	Increase inflation rate
		1.6.	Increase wages
3.	Complaints	1.7.	Change management and executives
		1.8.	Upgrade program
		1.9.	Use outsourcing
		1.10.	Increase cost of operation
4.	Improvement	1.11.	Add new software and programs
		1.12.	Change and improve policies
		1.13.	Add more resources and staff
5.	Political issues	1.14.	Increase benefits and packages
		1.15.	Expand age benefits
		1.16.	Initiates new jobs and opportunities
		1.17.	Change strategies and policies
6.	Growth in unemployment	1.18.	Add more assistance funds and benefits
		1.19.	Change strategies and policies
		1.20.	Social and cultural problems
		1.21.	Decrease government funds
		1.22.	Change management and executives
7.	Coordination	1.23.	Upgrade systems
		1.24.	Improve business processes
		1.25.	Adopt new technologies
		1.26.	Standardise regulations and polies
8.	Service and users' growth	1.27.	Expand and upgrade systems
		1.28.	Change policies and strategies
9.	Quality of services	1.29.	Upgrade and Improve the systems
10.	Management change	1.30.	Change policies and systems
		1.31.	Require new knowledge and experience
		1.32.	Change program
11.	Technology Dynamics	1.33.	Change and develop systems
		1.34.	Upgrade
12.	Management Control	1.35.	Modify Payment Policy
		1.36.	Modify Account Information
		1.37.	Create New Account
		1.38.	Modify Payment Business Process
		1.39.	Modify Deduction Rules
		1.40.	Create New Policies
		1.41.	Modify Deduction Process
		1.42.	Rollback Deduction and Penalties

8.1.11. Table 14: Hafiz's Business Process Change Alternative Scenarios Consolidation and Voting Documentation

Name	Scenarios	Member	Action	Voting	Result
BPCA1	Expand age benefits	CCM	Joined	6/6	Accepted
BPCA2	Increase the period of benefits	HPM	Joined	6/6	Accepted
BPCA3	Increase benefits and packages	DM	Joined	5/6	Accepted
BPCA4	Increase training programs	EA	Joined	6/6	Accepted
BPCA5	Initiates new jobs and opportunities	HPM	Joined	4/6	Accepted
BPCA6	Decrease government income	BPM	Joined	3/6	Accepted
BPCA7	Cutting budget from Hafiz Program	HPM	Joined	3/6	Accepted
BPCA8	Increase wages	CCM	Joined	3/6	Accepted
BPCA9	Modify Payment Policy	BD	Joined	4/6	Accepted
BPCA10	Modify Account Information	BPM	Joined	3/6	Accepted
BPCA11	Create New Account	DM	Joined	3/6	Accepted
BPCA12	Modify Payment Business Process	EA	Joined	3/6	Accepted
BPCA13	Modify Deduction Rules	BD	Joined	3/6	Accepted
BPCA14	Create New Policies	HPM	Joined	3/6	Accepted
BPCA15	Modify Deduction Process	EA	Joined	4/6	Accepted
BPCA17	Rollback Deduction and Penalties	CCM	Joined	3/6	Accepted
BPCA18	Change program	BD	Joined	2/6	Accepted
BPCA19	Improve business processes	BPM	Joined	3/6	Accepted
BPCA20	Change and improve policies	DM	Joined	3/6	Accepted
BPCA21	Upgrade and improve the systems	EA	Joined	3/6	Accepted
BPCA22	Adopt new technologies	BD	Joined	2/6	Accepted
BPCA23	Add more resources and staff	HPM	Joined	2/6	Accepted
BPCA24	Use outsourcing	EA	Joined	1/6	Accepted
BPCA25	Require new knowledge and experience	CCM	Joined	1/6	Accepted

8.1.12. Table 15: Hafiz Mangers' Voting Weights

Position	Abbreviation	Voting Weight
Hafiz Program Manager	HPM	5
Change and Configuration Manager	CCM	5
Development Manager	DM	4
Business Process Manager	BPM	4
Business Development Manager	BD	3
Enterprise Architect	EA	3

8.1.13. Table 16: Hafiz Mangers' Voting and Prioritisation Scenarios Documentation

Scenario	Position	HMP	CCM	DM	BPM	BD	EA	Aggregate Vote
Increase training programs		10	15	8	8	6	6	53
Increase benefits and packages		15	10	8	12	6	0	51
Increase the period of benefits		10	8	8	12	9	9	56
Expand age benefits		15	10	12	12	6	6	61
Initiates new jobs and opportunities		10	5	8	8	9	9	49
Decrease government income		10	10	8	0	0	0	28

8.2. Organisational Change Management Drivers & Business Process Scenarios Documentation Template

Driver									
Trigger									
Scenario									
Alternative Solution 1	<table> <tr> <td>Scenario</td><td></td></tr> <tr> <td>Reasoning</td><td></td></tr> <tr> <td>Action</td><td></td></tr> <tr> <td>Priority</td><td></td></tr> </table>	Scenario		Reasoning		Action		Priority	
Scenario									
Reasoning									
Action									
Priority									
Alternative Solution 2	<table> <tr> <td>Scenario</td><td></td></tr> <tr> <td>Reasoning</td><td></td></tr> <tr> <td>Action</td><td></td></tr> <tr> <td>Priority</td><td></td></tr> </table>	Scenario		Reasoning		Action		Priority	
Scenario									
Reasoning									
Action									
Priority									
Alternative Solution 3	<table> <tr> <td>Scenario</td><td></td></tr> <tr> <td>Reasoning</td><td></td></tr> <tr> <td>Action</td><td></td></tr> <tr> <td>Priority</td><td></td></tr> </table>	Scenario		Reasoning		Action		Priority	
Scenario									
Reasoning									
Action									
Priority									

8.3. Business Process Modelling Notation Scenarios Representation Template

8.4. Hafiz Organisational Structure

8.5. Hafiz Functional Structure

8.6. Glossary/Acronyms

8.6.11. General

Terminology	Description
BPC	Business Process Change
BPCD	Business Process Change Decision
BPMN	Business Process Modelling Notation
CAM	Causal Analysis Model
CM Team	Change Management Team of the Hafiz Program, case study
HCMS	Hierarchical Change Management Structure
HEW	Hierarchical Change Management Structure Elicitation Workshop
OPM	Organisation Performance Measurement

8.6.12. Case Study Workshop Terminology

Terminology	Description
BPMO	Business Process Management Officer
BPP	Beneficiary Payment Processing
BTP	Beneficiary Training Process
CAP	Candidate Approval Process
CAPS	Candidate Application Processing System
CBO	Chief Business Officer
CEA	Chief Enterprise Architect
CEP	Candidate Evaluation Process
CIP	Coordination & Integration Platform
CMP	Complaints Management Process
COO	Chief Operation Officer
CRP	Candidate Registration Process
CTO	Chief Technology Officer
DPP	Deduction & Penalty Processing
DRP	Dispute Resolution Process
ESIR	Enhance Students Ineligibility Reason
FI	Financial Incentives (to encourage job seeking)

Terminology	Description
GOSIP	GOSI Coordination Process
HJSE	Help Job Seekers to find Employment
HMP	Hafiz Main Portal
HPM	Hafiz Program Manager
JMP	Job Matching Processing
MCIP	MCI Coordination Process
MCP	Monitoring and Controlling Process
MCS	Monitoring & Control System
MFP	MOF Coordination Process
MHEP	MOHE Coordination Process
MIP	MOI Coordination Process
MLP	MOL Coordination Process
OCP	Organisation Coordination Process
PPS	Payment Processing System
QAO	Quality Assurance Officer
RDP	Report & Data Analysis Platform
RMP	Report Management Process
RUP	Resolve Unemployment Problem
SBA	Senior Business Architecture
SOM	Senior Operation Manager
STM	Senior Technology Manager
TBMD	Provide Training to Bridge Market Demand
TMS	Training Management System

8.6.13. Business Process Alternatives

Terminology	Description
AAP	Auto Append Policy
ACD	Auto Change Deduction
ACP	Auto Change Policy
ACR	Auto Change Repository
ADP	Auto Deduction Process
ADT	Auto Delete Transaction
ANA	Auto New Account
AOP	Append Old Policy
APC	Auto Policy Creation
APP	Amend Payment Protocol
APR	Amend Policy Rules
APS	Auto Payment Sub-module
ARP	Auto Replace Policy
ART	Auto Rollback Transaction
BPD	Business Process Driven

Terminology	Description
CDP	Change Deduction Process
CDR	Change Deduction Rules
CNA	Create New Account
CNP	Create New Policies
CPG	Change Payment Gateway
CPP	Change Payment Protocol
CPR	Change Policy Repository
CPS	Change Payment Sub-module
DTL	Delete Transaction Log
ECW	Execute Callback Web service
INA	Insert New Account
INP	Insert New Policy
MAI	Modify Account Information
MAP	Manual Append Policy
MBA	Modify Bank Account
MCD	Manual Change Deduction
MCP	Manual Change Policy
MCR	Manual Change Repository
MDM	Manual DB Modification
MDP	Modify Deduction Process
MDR	Modify Deduction Rules
MDT	Manual Delete Transaction
MLA	Modify Local Account
MNA	Manual New Account
MPB	Modify Payment Business Process
MPP	Modify Payment Policy
MPS	Manual Payment Sub-module
MRP	Manual Replace Policy
RDP	Rollback Detection and Penalties
ROP	Replace Old Policy
RPC	Radical Payment Change
RTM	Rollback Transaction Manager