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学 位 論 文 題 目	**Overcoming the liability of renewal at the Saudi Railway Sector**
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論 文 内 容 の 要 旨

This dissertation examines the organizational process involved in an organization that is attempting to adjust to substantial environmental (institutional) changes in its environment. This dissertation utilizes research and concepts from a variety of organizational research fields. The main research streams included concepts from the management fields of organizational studies, in particular organizational learning and the organizational resource and capability based economic view. In addition the population ecology and institutional economic view also contributed to the conceptual model developed in this research. The conceptual model included 6 propositions.

Proposition 1: Inertia has a negative relationship with changes in organizational capabilities.

Proposition 2: Change in organizational capabilities has a positive relationship with changes in performance.

Proposition 3: Legitimacy has a positive relationship with changes in performance.

Proposition 4: Changes in performance have a negative relationship with changes in pressure for change.

Proposition 5: Changes in legitimacy have a negative relationship with changes in pressure for change.

Proposition 6: Pressure for change has a positive relationship with Organizational learning.

The model used in the research seeks to understand the process by which an established organization adjusts to maintain its position in its environment and re-establish its legitimacy among its stakeholders. The researcher suggests that this process of adjusting requires that the organization learn new capabilities and still maintain and improve its current operations. As such the organization is at risk of failure. This risk of failure was termed the liability of renewal by the researcher. Hence, the liability of renewal, was defined by the researchers as whenever an established organization tries to minimize errors to re-gain legitimacy throughout a process of organizational learning from changes in capabilities which aims to improve its performance. During the renewal process the organization risk of failure in implementing new routines increases. This increased risk of failure, was referred to as the liability of renewal.

The research was conducted by examining two organizations in the railway sector of the Saudi Arabian economy. The first organization was the established incumbent, the Saudi Railway Organization (SRO). It was established in 1947 and for most of its existence was the only organization providing rail services in Saudi Arabia. In this research SRO is the main focal organization. The second organization examined in this research was the Saudi Railway Company (SAR), which was the new entrant into the Saudi Arabian railway sector, being established in 2006.

The researcher examines three main research questions in the research study. First the research examined the role

of the liability of renewal in an established organization confronting environmental change. In particular this research examined how the organizational renewal process reflected on the balance between the dynamic aspects of organizational learning as indicated by changes in organizational capabilities and the stabilizing aspects of organizational inertia.

Second this research addressed the research question of whether the new entrant (SAR) would have an impact on the existing organization (SRO). The researcher indicated that since entry of SAR as a competitor in the railway sector creates a substantial environmental (institutional) turbulence or change this entry should influence the process of organizational renewal.

Third, this research also examined the role of the liability of newness in the establishment of SAR. This was a minor research question in the research agenda presented in the dissertation.

In answering these three research questions, the research analyzed the propositions listed above for the Saudi Railway Organization (SRO) in terms of its freight and passenger operations from 2001-2014 and also the freight operation at the Saudi Railway Company (SAR) from 2011-2014. SAR did not have passenger service during the time of the research. The researcher expected that the new entrant SAR would create an environmental (institutional) turbulence or change that would have an impact on the existing organization SRO. Consequently, the research also examined the propositions listed above for SRO before and after SAR's entrance into the Saudi Arabian railway sector.

Since this research study examines organizational learning in terms of the changes in organizational capabilities, pressure for change, organizational legitimacy and organizational performance, an archival data methodology was used. In order to operationalize the variables used in the study, multiple measures were used as indicators for the variables. For example, the Organizational Capability variable was operationalized through the indicator measures of "Number of freight wagons per single trip", "Number of Total freight trips per year", "Number of passenger trips", "Added number of freight cars", "Added number of passenger cars" and such. The Organizational Performance variable was operationalized through the indicator measures "Number of passengers per year", " Number of containers per year", "Freight revenue per year", "Passenger revenue per year" and such. The pressure for change variable was operationalized through the indicator measures "Percentage of achieved goals per year", "Freight expenses per year", "Passenger expenses per year", "Percentage of accidents per freight trip per year", "Percentage of accidents per passenger trip pre year", and such. Legitimacy had only one indicator measure "Amount of budget from the government per year". It was explained that since the government was the main stakeholder for each organization, this one indicator was the most prominent measure for legitimacy.

In addition to the multiple indicators used to operationalize the variables, a difference equation approach was used to operationalize the variables related to organizational learning, and organizational inertia, since these could not be measured directly in a longitudinal study such as the one conducted by the researcher. This difference equation approach has been suggested in previous research to measure variables such as learning and inertia.

Three difference equations were used to examine each of the hypotheses. The equations and relevant hypotheses are listed below, along with the variable examined.

Ⅰ. **Equation 1:** $\Delta Yt = \alpha_0 + \alpha_1 Xt + \alpha_2 Yt\text{-}1 + \varepsilon t$

・$\Delta Yt = Yt - Yt_{-1}$ = Changes in organizational capability as indicator of organizational learning.

・Xt = Pressure for change,

・Yt_{-1} = Organizational capability lagged one year as the indicator of inertia.

H1: Inertia has a negative relationship with changes in organizational capabilities.

H6: Pressure for change has a positive relationship with Organizational learning.

Ⅱ. **Equation 2:** $\Delta Zt = b_0 + b_1 \Delta Yt + b_2 Ut + \varepsilon t$

・$\Delta Zt = Zt – Zt\text{-}1$ = *Changes in organization performance,*

・$\Delta Yt = Yt - Yt\text{-}1$ = Changes in organizational capability as indicator of organizational learning.

・Ut = *Legitimacy,*

H2: Change in organizational capabilities has a positive relationship with changes in performance.

H3: Legitimacy has a positive relationship with changes in performance

Ⅲ. **Equation 3:** $\Delta Xt = c_0 + c_1 \Delta Zt + c_2 \Delta Ut + \varepsilon t$

・$\Delta Xt = Xt – Xt\text{-}1$ = *Changes in pressure for change*

・$\Delta Zt = Zt – Zt\text{-}1$ = *Changes in organization performance*

・$\Delta Ut = Ut - Ut\text{-}1$ = Changes in legitimacy

H4: Changes in performance have a negative relationship with changes in pressure for change.

H5: Changes in legitimacy have a negative relationship with changes in pressure for change.

Using the archival data collected from the SRO, SAR and the Saudi Arabian government, each of these equations was analyzed using regression analysis. The analysis was done for SRO first for the entire data set from 2001-2014. Then for SRO for the period prior to the entry of SAR, that is 2001-2005 and then for the post-SAR entry period, 2006-2014. Analysis was also done for SAR for the period 2011-2014.

In addressing the first research question the results of the regression analyses of the difference equations for SRO form 2001-2014 and also in the pre- and post of SAR entry period, indicated partial support for the model and the concept of liability of renewal in that most of the measures for the variables were in the hypothesized direction.

In addressing the second research question the results of the regression analysis of the difference equations for the pre- and post SAR entry periods, again indicated partial support for the model in that variables for organizational learning, organizational inertia, organization performance, pressure for change and legitimacy for SRO shifted as expected as the new entrant (SAR) had an impact on the existing organization (SRO) as an institutional/environmental turbulence or change. The results of the research analyses indicated that the balance between the dynamic aspect of organizational learning as indicated by changes in organizational capabilities and the stabilizing aspects of organizational inertia are effected by changes in the institutional environment, in particular the establishment of SAR.

In particular, the results of the research study showed partial support for the model, in that it seems that SRO has changed some of it capabilities in the freight and the passenger operations, which allowed SRO to learn from the changes and as a result improve its performance.

The results of the analyses indicated further that SRO has difficulties in overcoming the liability of renewal through changing its capabilities as indicated by the structure inertia seen over the time series from 2001-2014.

In addressing the third research question, because the time series for SAR was short, most of the relationships were indeterminate. However, the results did indicate that SAR as a startup organization was developing and surviving the period of liability of newness. Hypothesis 6 received some support from the regression analysis of the difference equations and it was observed that SAR added capabilities throughout the period of the study.

In summary the research indicated that analyses found support for the model in that most of the results were in the hypothesized direction. Further, it was found that learning from changes in organizational capability had a positive effect on performance and that legitimacy had a positive effect on performance. It was also found that performance and legitimacy had a negative relationship with pressure for change. Finally, it was found that environmental (institutional) turbulence or change has an impact on the already established organization.

We the committee, find that the research conducted by Mr. Alshehri Sultan and presented in his dissertation document fulfills the requirements for the Phd degree and that Mr. Alshehri Sultan has successfully defended his dissertation. We, the committee therefore conclude that Mr. Alshehri Sultan should be granted the Phd degree.

We find that his dissertation research has successfully addressed several major research questions in the fields of management and organizational studies, especially organiztional learning. He has approached the development and examination of these research questions with methodological rigor and has empirically analyzed these questions by statistical analysis of propostions related to each research question. The contributions his research makes to these fields are described below.

His literature review developed the conceptual antecedents for his model and the model introduces the concept of the liability of renewal. His conceptual work describes the liability of renewal concept as a dynamic process of balance between the forces of organizational learning, as indicated by changes in organizational capabilities, and organizational inertia. His conceptual model also outlines the relationship between organiztional performance, legitimacy and pressure for change exerted on the organiztion. His empirical testing of the model validates his model and the concept of liability of renewal.

His empirical testing of his model also provides contributions to the field. An issue often raised in the field of organizational learning, especially in the area of the resource and capabilities, is how to measure capabilites. Although researchers have suggested that multiple measures should be used, few studies have done so. Mr. Alshehri Sultan's study does use multiple measure as indicators of his variables. In addtion, his study also used difference equations to indicate organiational learning and organizational inertia.

In examining his dissertation, if there is one area that should be improved it is that his discussion section could do more to develop his findings and contributions. We suggest that in future research that Mr. Alshehri Sultan develop more fully the implications of his findings and the contributions these make and to develop in more detail how his findings open new research questions for the field of management and organiational studies. We further suggest that he be more careful in his over optimistic presentation of his results.

We also offer the following as areas for future study that would build upon and improve his current research. Since the current research tried to measure changes in organizational capabilities as an indicator of organizational learning this means that the current research did not measure the organizational learning process directly. We recognize that doing so in the times series methodology was not possible, however we suggest that Mr. Alshehri Sultan develop more direct measure of this concept.

We also suggest the same for the organizational inertia variable, which was measured as the lag of changes in organizational capabilities. For future research, Mr. Alshehri Sultan should develop more direct measures of organizational inertia and we further suggest that he correlate these more direct measure with the measures he uses in his current study. This would make a stronger contribution to the field of study in that it would further validate his measures and offer guidance to other researchers working in the filed.

We strongly suggest that Mr. Alshehri Sultan continue his research and collect more data as time permits. The time series of 13 years for SRO and 3 years for SAR while adequate for the current study did not permit the testing of the whole model simultaneously. A simultaneous testing of the three difference equations would provide a more powerful contribution to the field of study. We are confident that in the future, with more data and more refined measures of the variables, Mr. Alshehri Sultan will be able to conduct a simultaneous equation examination of the model.

We make the above suggestions and recommendations as part of our guidance for future research and we find that the research as presented is sufficient to grant the Phd degree.