

# HRM System Formality and Organizational Ambidexterity Strategy in Technological Startup Companies

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*The low survival of technological startup companies (TSCs) is partly due to the lack of human resources management formality (HRMF). This study clarifies HRMF and identifies a relevant measure for TSCs. It explores HRMF changes and their fit with business strategy changes during TSC development, operationalized as dynamic organizational ambidexterity. Data from 147 TSC leaders and HR role holders were collected twice, a year apart. HRMF control and professionalism were significantly related to ambidexterity strategy. Findings indicate that strategy changes precede HRMF changes. Results suggest that HRMF practices should be periodically matched to the ambidexterity strategy for TSC success.*

*Keywords: HRM formality, HR control, HR professionalism, startup, organizational ambidexterity, HRM–strategy fit*

## INTRODUCTION

Technological startup companies (TSCs) have been recognized as bearing tremendous potential for business and economic success (Nair & Blomquist, 2019), even during the Covid-19 crisis: “The impressive investment figures in a difficult global crisis indicate a great deal of global confidence in the startup” (Gilad, 2022, p. 1).

Alongside the promise of TSCs, there is a disturbing phenomenon of entrepreneurs who produce promising innovative ideas and plans yet fail to implement them as successful businesses. About 75% to 90% of startup firms in the United States fail (Kotashev, 2022). This low survival rate is partly due to the lack of adaptation to an effective managerial system (Auzair, 2010). TSCs are characterized as having unique innovativeness and growth aspirations (National Commission on Entrepreneurship, 2021). The lack of integrated formal systems, such as management control systems, is considered a hindrance to growth.

A human resources management (HRM) system is considered a source of sustained competitive advantage for TSCs. Its contribution is based on resource-based view theory (Barney, 1991), which argues that human capital can be a valuable source of sustained competitive advantage via the direct and indirect effects of HRM on TSC success (CB Insights, 2021; Nair & Blomquist, 2019). Research on the HRM–performance relationship has progressed considerably, from the micro-level understanding of the effect of a single HR practice to the macro level of exploring HRM system or bundle and organizational performance (Bowen & Ostroff, 2004; Burhan et al., 2020). Researchers have emphasized the need to change the chaotic and informal nature of early stage HRM into a formal HRM system (Davila et al., 2010; de Kok & Uhlaner, 2001; Keating & Olivares, 2006). The formal HRM–performance relationship has been studied in small and entrepreneurial companies, but results were inconsistent. Some studies demonstrated positive effects

of HRM formality (HRMF), such as low absenteeism and turnover and improved commitment, manager engagement, and financial performance (Welbourne & Cyr, 1999). In contrast, other researchers demonstrated negative effects, such as bureaucracy decreasing flexibility and trust, both of which are essential to TSC success (Dekker, 2004). This inconsistency may partially stem from various conceptualizations and measures of HRMF among researchers. In addition, HRM researchers agree that understanding HRM requires considering the context (Gooderham et al., 2019). TSCs worldwide share the context of growth intention through innovation, uncertainty, limited resources, reliance on investors, and risk (Bammens & Collewaert, 2014). The meaning of and relevant measures for HRMF in the unique context of TSCs remain unclear. Thus, the first purpose of this study was to clarify the HRMF concept and use a relevant measure in this unique context of TSCs.

We suggest a dual-dimensional approach for HRMF. The first dimension is HR control. We considered formal managerial control in entrepreneurial companies, adopting the two components proposed by Das and Teng (2001): control of behaviors (inputs or processes leading to results) and control of results (outputs). Behavior control includes mechanisms like company structure and recruitment procedures that encourage desired actions, whereas result control involves measuring outcomes through methods such as evaluations and bonuses. HRMF involves the presence of documented rules, regulations, and instructions integrated in the company. The second dimension is professionalism. Professionalism in HRM occurs because of external characteristics, referring to the professionalism of the function or department (distinguished and decision-making involvement), and internal characteristics, which refer to the professionalism of the individual role holder (Farndale, 2005).

Snell and Morris (2021) argued that to achieve HRM system effectiveness, the HRM system should be aligned with the company's needs and strategy. Based on TSCs' unique needs related to growth aspirations (National Commission on Entrepreneurship, 2021), we suggest an alternative approach to TSC development as reflected in organizational strategy changes via dynamic organizational ambidexterity (Rossi et al., 2019). March (1991) identified two primary corporate strategies: knowledge exploration (searching, risk-taking, and innovating) and knowledge exploitation (production, efficiency, and performance). He noted that organizations must allocate resources between these strategies. Organizational ambidexterity refers to the crucial need to balance these strategies over time for competitive advantage and survival (Lavie et al., 2010; Rossi et al., 2020). Sørensen and Stuart (2000) observed that startups often evolve from focusing on knowledge exploration to integrating both exploration and exploitation. We also adopted the contextual ambidexterity viewpoint, which suggests alignment among all activity patterns in the business unit; they collectively work toward the same goals (Gibson & Birkinshaw, 2004).

It also remains unclear whether contextual ambidexterity is related to HRMF in TSC. Thus, the second purpose was to study HRM–strategy fit, meaning the concordance of HRMF and business strategy changes during TSC development. For HR control fit, we used organizational control theories that contend that the managerial control system should be adapted to the characteristics of organizational activity (task programmability and expected results), as reflected in organizational ambidexterity (Das & Teng, 2001).

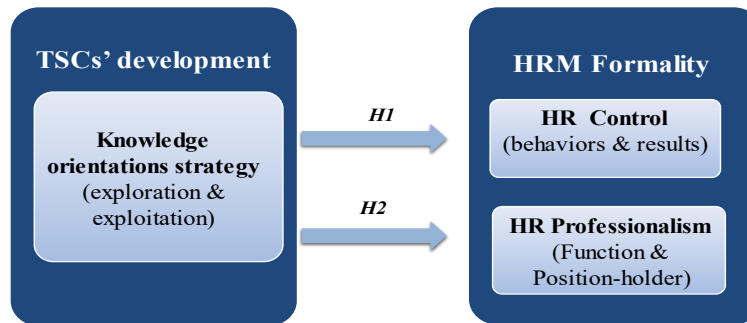
***Hypothesis 1:*** *A knowledge exploration orientation will be negatively related to HRM control.*

For HR professionalism fit with organizational ambidexterity, we adapted the delegation process from TSC leader to professional function (Auzair, 2010). This is analogous to the biological process of embryonic development involving cell differentiation.

***Hypothesis 2:*** *A knowledge exploration orientation will be negatively related to HR professionalism.*

Researchers have explained the HRM–organizational ambidexterity relationship by assuming that HRMF affects organizational ambidexterity (Malik et al., 2019). We asked whether the direction of these effect differs and suggest an alternative effect direction: Organizational ambidexterity affects HRMF.

**FIGURE 1**  
**RESEARCH MODEL**



## METHODS

Recognizing the dynamic nature of a company's contextual conditions (Rousseau & Fried, 2001), our study took place at two points. Study 2 was conducted a year after Study 1. Data were collected from the same sample. To avoid mono-source method bias, data were collected from two sources: A questionnaire collected general information regarding the company, company knowledge orientation, and personal characteristics from CEOs. A second questionnaire, directed toward the HR role holder, included a measure of HRMF, i.e., professionalism and control, and the number of company employees.

### Sample

The company sample included TSCs in Israel that met the criteria proposed by Stubner et al. (2007)—i.e., young, small, and enterprising companies in the high-tech field. We defined young as 1–10 years of activity and small as 10–100 employees (we excluded smaller companies, considered to be microenterprises). In Study 2, due to growth, six companies employed more than 100 employees.

The companies were categorized according to technology distribution by percentage: communications (19%), software (19%), life sciences (32%), internet (11%), semiconductors (9%), green tech (7%), and financial tech (3%; IVC Research Center, 2018). The IVC company list was used to contact CEOs via email. In total, 137 members from 43 and 41 companies participated in Study 1 and Study 2, respectively. The response rate was 35%. The average number of employees in each company was 43.7 and 50.7 ( $SD = 30.1$  and  $36.6$ ), respectively. In Study 1 and Study 2, 63 and 74 respondents participated, respectively, of whom 43 and 41 were CEOs and 20 and 33 were HR managers. HR was handled by an employee or manager in addition to another role in 46.5% of the companies. Data were collected in adherence to the rules of ethics and anonymity mandated by the University of Haifa Ethics Committee.

### Measures

The control dimension was measured by a prestudy process that included collecting and adapting relevant HRM practices from research questionnaires (Davila, 2005; de Kok et al., 2006). Fifteen HRM practices were rated for their relevance to TSCs in Israel by 15 HRM academic professionals and HR role holders in TSCs. Items with at least 80% agreement were included. The questionnaires were modified to a 7-point Likert scale. HR control items covered six areas: planning, staffing, training and development, rewards, performance management, and employment relations. Confirmatory factor analysis indicated all control items were significantly and positively correlated. Examples are: "How frequently does your company use clear organizational structure?" and "How frequently does your company use clear plans for training and development?" Answers were provided on a 7-point Likert scale from 1 (*not at all*) to 7 (*to a very large extent*), with  $\alpha = .78$  and  $.92$  for Study 1 and Study 2, respectively.

The HR professionalism measure explored two domains: functions and role holder (Frandalet, 2005). Functional professionalism was tested by one item: "Which of the following best describes HRM in your

company? (1) by CEO; (2) combination with other job; (3) separate HR position; (4) external HR; and (5) other” (Ghassemieh et al., 2005). Function professionalism also referred to strategic involvement, tested through an objective measure of the function’s status in the management team and direct reporting line to the company head. The subjective dimension assessed the level of involvement in strategic decisions. Role holder professionalism was tested by examining professional competencies and previous experience in HR management (Papadopoulos, 2019). Functional professionalism scores ranged between 0 and 6. A high professionalism score reflected high decentralization (Chow, 2003; Wagar, 1998), involvement in management, and involvement in strategic decisions (Ulrich et al., 1997). Role holder professionalism scores ranged between 0 and 4. HR managers with formal professional and eight SHRM competencies reflected high professionalism (Papadopoulos, 2019). Like Welbourne and Cyr (1999), the general professionalism level was a summed score of both dimensions and ranged between 0 and 10.

Organizational ambidexterity was measured as knowledge exploration and exploitation (March, 1991). Using Lavie et al.’s (2010) and Liao’s (2006) approach, the measure referred to the percentage of the total annual budget invested in each activity (exploration and exploitation), summing to 100%. Therefore, the score of investment in one knowledge orientation indicates the complementary score of the other. Scores ranged between 0 to 100.

As in previous studies, several control variables relevant to the present research were included: company size (de Kok et al., 2006), measured as the number of full-time employees; company age (Rothaermel & Deeds, 2004); and investor involvement in HRM, based on a measure adapted from Stubner et al. (2007). The questions referred to the investor’s familiarity with the company’s HRM, involvement in HR decisions and practices, and amount of time invested in HR issues in the company. For example: “To what extent is the investor or representatives involved in practices related to managing workers in the company (e.g., HR planning, recruitment, training and development, compensation, performance management, promotion, and downsizing)?” Answers were provided on a 7-point Likert scale ranging from 1 (*not at all*) to 7 (*to a very large extent*). The reliability of this measure was  $\alpha = .83$ . TSC leader characteristics included prior exposure to formal HRM, measured by asking: “Did a distinct formal HR function exist in the company during your previous employment?” Leaders’ attitude toward formal HRM was measured by asking: “How do you rate the contribution of formal HRM to the company?” Answers were rated 1 (*not at all*) to 5 (*to a very large extent*).

## RESULTS

### Descriptive Statistics

Table 1 presents descriptive statistics for all research variables for Study 1 and Study 2.

**TABLE 1**  
**DESCRIPTIVE STATISTICS AND CORRELATIONS OF RESEARCH VARIABLES**

Variable	<i>M</i>	<i>SD</i>	Range	1	2	3	4	5	6	7
1. HR control	4.78 <i>4.90</i>	1.06 <i>1.58</i>	2.5–6.0 <i>1–7</i>		.70**	-.67**	.59**	.24		
2. HR professionalism	5.00 <i>5.20</i>	2.74 <i>2.61</i>	2.1–10 <i>1–10</i>	.70**		.64**	.48**	.38*		
3. Knowledge orientation	18.2 <i>18.6</i>	56.02 <i>51.36</i>	22–85 <i>20–80</i>	-.52**	-.61**		.51**	.54**		
4. Org. size (control)	43.7 <i>50.7</i>	30.1 <i>36.6</i>	10–100 <i>10–126</i>	.44**	.62**	.68**		.52**		
5. Org. age (control)	7.64 <i>9.96</i>	3.91 <i>7.48</i>	1–16 <i>2–17</i>	.37*	.41**	-.63**	.54**			

Variable	<i>M</i>	<i>SD</i>	Range	1	2	3	4	5	6	7
6. Investor involvement in HRM (control)	3.75	0.83	2-5.2	.25	.10	.32	.34*			
7. CEO exposure to formal HRM (control)	4.7	0.94	2.5-5.7	.29	.22	.34	.18	.23	.12	
8. CEO attitude toward formal HRM (control)	5.3	1.3	3.2-6.1	.30	.26	.19	.37*	.29	.09	.52*

*Note.* Study 1: 43 companies, 43 CEOs, 20 HR managers. Study 2: 41 companies, 41 CEOs, and 33 HR managers. Internal consistency and reliability coefficients (alphas) appear on the diagonal. Values in italics and above the diagonal are relative to Study 2. \* $p < .05$ . \*\* $p < .01$ .

The HRMF exploratory factor analysis indicated two factors. Each factor loading was higher than .40. Confirmatory factor analysis indicated all factor items were significantly and positively correlated. We assumed HR control and professionalism related to the common theoretical concept of HRM formality. Results indicate a consistently high significant positive relationship between these variables (Study 1:  $r = .70$ ,  $p < .01$ ; Study 2:  $r = .68$ ,  $p < .01$ ).

### Hypotheses Testing

We assumed a negative relationship between a knowledge exploration orientation and HRMF. To test these relationships, we conducted multiple regression to predict HRMF by knowledge orientation and control variables: company size and age.

The results indicate that knowledge exploration orientation was significantly negatively related to the HR control dimension ( $\beta = -.40$ ,  $p < .01$ ;  $\beta = -.58$ ,  $p < .01$ ; Adj.  $r = .43$  and  $.59$ , respectively) and professionalism dimension ( $\beta = -.63$ ,  $p < .01$ ;  $\beta = -.64$ ,  $p < .01$ ; Adj.  $r = .39$  and  $.65$ ) in both studies. Thus, both hypotheses regarding fit of knowledge orientation and both HRMF were consistently supported.

**TABLE 2**  
**STANDARDIZED REGRESSION MODEL OF HRMF (CONTROL AND PROFESSIONALISM)**

Predictor	Study 1		Study 2	
	Control	Professionalism	Control	Professionalism
Knowledge orientation	-0.40**	-0.63**	-0.58**	-0.64**
Company size (control)	0.33*	0.39*	0.36*	0.32
Company age (control)	0.19†	0.24	0.22†	0.22
Constant	3.58*	1.58	7.64**	3.94**
$R^2$	.48	.41	.61	.68
Adj. $R^2$	.43	.39	.59	.65
$F$	7.93**	6.91**	22.35*	17.63**

*Note.* Study 1: 43 companies, 43 CEOs, and 20 HR managers. Study 2: 41 companies, 41 CEOs, and 33 HR managers. † $p < .075$ . \* $p < .05$ . \*\* $p < .01$ .

### Additional Results

The multiple regression results indicated that company size was significantly related to HR control ( $\beta = -.33$ ,  $p < .05$ ;  $\beta = -.39$ ,  $p < .05$ , respectively) but had a nonsignificant relationship with HR professionalism in both studies. Company age and other control variables of investor involvement in HRM and TSC leader characteristics of prior exposure to and attitude toward formal HRM had nonsignificant correlations with both HRMF dimensions. Due their stable nature, they were excluded in Study 2 and omitted from the regression model.

To assess change over time, approximately 1 year between Study 1 and Study 2, we used a paired *t*-test analysis. Table 3 shows the results of a mean comparison of variables in the two studies. The results indicate a significant difference in knowledge orientation between the two studies. The knowledge exploration orientation component was lower at Time 2 than Time 1,  $t(40) = 2.76, p < .01$ . This result is in line with our assumption that TSC development over time can be reflected in changes in organizational ambidexterity. The results indicate nonsignificant differences in both HRMF components, i.e., mean HR control and professionalism.

**TABLE 3**  
**MEAN COMPARISON OF VARIABLES AT TIME 1 (STUDY 1) AND TIME 2 (STUDY 2)**

Variable	Study 1 <i>M</i>	Study 2 <i>M</i>	Paired <i>t</i>	<i>df</i>	<i>r</i>
Knowledge exploration orientation	55.34	50.5	2.76*	40	.80*
HR control	4.77	4.90	0.86	40	.54*
HR professionalism	5.10	5.20	-0.30	40	.70*

\* $p < .01$ .

## DISCUSSION

The study's first purpose was to clarify the concept and measurement of HRMF and use a relevant measure in the unique context of TSCs. HRMF was conceptualized as a dual-dimensional concept that includes HR control and professionalism components.

The dual-dimensional approach is in line with de Kok and Uhlaner's (2001) statement that "formalization is probably not a homogeneous concept and thus should not be treated a single variable but as a cluster of variables" (p. 5). We adapted Burhan et al.'s (2020) suggestion that a formal HRM system in growing companies should include recruiting, selection, training and development, performance management, and compensation practices. Our HR control measure indicated reliability according to Delery and Gupta's (2016) demand for internal (horizontal) fit of HR practices for organizational performance. The results support this theoretical framework based on factor analysis and the strong positive relationship between these components. The HRMF dual-dimensional approach is also in harmony with Wilkerson and Seers' (2019) concept of functional elaboration as including two dimensions: quantitative (expanded to capture HRM subfunctions) and qualitative (deepened and made more sophisticated and complex; Wilkerson et al., 2020). According to the present HRMF model, control expressed by procedures, policies, and monitoring and measuring of results (Das & Teng, 2001) refers to the quantitative dimension. Our second HRMF dimension of professionalism, reflecting internal and external professionalism expressed in the HR function or department and role holder characteristics (Franda, 2005), refers to the qualitative dimension. The HRM functional elaboration model has yet to be empirically studied.

The second study purpose was to study HRM–strategy fit. Our findings indicate a significant relationship between company age and knowledge orientations and significant differences between knowledge orientations over 1 year). As the companies aged, an organizational ambidexterity strategy appeared, signified by a decrease in knowledge exploration and an increase in knowledge exploitation.

The reference to organizational ambidexterity as an expression of startup development is considered an innovation of our study. Previously, company size constituted a main expression of development. Its contribution to predicting HRMF has been presented elsewhere (Kotey & Slade, 2005). Although the present research found a significant negative relationship between company size and knowledge exploration, its intensity indicates an unexplained variance of approximately two thirds. This finding indicates the need to differentiate measures of size and organizational ambidexterity. Today, the number of employees is no longer an appropriate measure of company size. Many companies, especially after the Covid-19 pandemic, use more flexible employment arrangements, including contingent employees (Donnelly, 2022). Flexibility and contingency arrangements characterize Generation Z's expectations for workplace commitment and choice of employer, and some people choose to work as freelancers

(Stankiewicz-Mróz, 2020). These flexible and contingent workers are not formally counted as company employees. Therefore, organizational ambidexterity constitutes a more valid measure of startup company development than the number of employees.

The relationship between organizational ambidexterity and HRMF can be explained by several theories. The first is contingency theory, guided by the “general orienting hypothesis that organizations whose internal features best match the demands of their environments will achieve the best adaptation” (Scott, 1981, p. 89). This theory has been adopted for startup companies (Littunen & Niittykangas, 2010). Researchers have noted the need for a match between HR strategy and company strategy. Organizational ambidexterity is considered a company strategy (Rossi et al., 2020) and accordingly, HRMF can be considered an HR strategy. We demonstrated consistent relationships between these strategies.

An alternative perspective for explaining the organizational ambidexterity and HR control is organizational theories of control, which posit a relationship between the characteristics of organizational activity and managerial control (Das & Teng, 2001). The use of formal managerial control depends on two factors: task programmability and the availability of information to measure results. As the company grows and the organizational ambidexterity strategy moves toward knowledge exploitation, its processes, expected behaviors, and results become more defined and measurable. These conditions require formal managerial control. In fact, the strategy and nature of the activity create conditions that dictate the nature of managerial control required to attain company goals.

We expanded Mutua’s (2019) research on HR professionalism as the presence of a formal HR unit by referring to HR unit characteristics as a business partner and HR role holder qualities. Our findings indicate that organizational ambidexterity consistently fit the professionalism dimension of HRMF—the HR department and role holder. One possible explanation is that the change in TSC strategy is accompanied by an increasing range of activities: production, marketing, sales, distribution, administration, management, and employee management. The TSC head, who to this stage had led the management of various areas alone, no longer has sufficient time and knowledge resources for all activities (Greiner, 1972). Thus, a need emerges to appoint distinct function and role holders with professional competencies for managing and handling these new areas, including HRM. Hence, the strategy defines both HRMF professionalism components of functional professionalism and role holder professionalism. We suggest an alternative explanation of organizational ambidexterity’s relationship with HR professionalism using the biological theory of embryonic development.

The third purpose was to study the causality direction of HRM–organizational ambidexterity fit. An alternative approach suggests different directions of causality, contending that the nature of control may enable or delay the attainment of various company strategies. Bijlsma-Frankema and Costa (2005) emphasized that informal control is efficient for knowledge exploration, whereas formal control is efficient for knowledge exploitation. Our research helped clarify the causal direction over time. During the year between data collection points, change occurred in the organizational ambidexterity cluster but not in the level of HR control and professionalism. This finding may indicate the direction of the relationship between organizational ambidexterity and HRMF. Change first took place in the company’s strategy, apparently leading to a modification in HRMF.

Investor involvement was not correlated with HRMF. Involvement was expressed mainly as the investor’s presence in board meetings and regarding financial control, rather than decisions and practices related to HRM. The potential of transferring professional HRM resources from investor to investee was not realized. There may be several explanations for this finding. Some leaders prefer to use alternative informal networks, such as web forums or mentors instead of investors, to obtain managerial knowledge and competencies (Littunen & Niittykangas, 2010). Alternatively, some managers and venture capitalists believe that “anyone can do HRM” (Ulrich et al., 1997) and fail to focus on transferring professional knowledge in this area, instead relying on their common sense.

### **Contributions, Limitations, and Future Research**

The present study has theoretical methodological and practical contributions. Theoretically, we clarified HRMF as a dual-dimensional concept involving control and professionalism as combining

function and role holder. Moreover, we contributed to the understanding of causality between HRM and strategy changes. We also found support for internal dynamic ambidexterity in TSCs.

Methodologically, we suggest a tool for HRMF of bundles of HR practices for control and function and role holder characteristics for professionalism. For TCS development, we suggest a relevant measure based on budget allocation between two groups of activities.

Practically, we suggest that TSC leaders implement HRMF via a bundle of HR practices (planning, staffing, rewards, performance management, and employee relations) and HR function characteristics, which should be periodically matched to the TSC's organizational ambidexterity strategy as reflected in budget allocation for activities.

This study has several methodological limitations. The company sample was relatively small. It was an industry structure-represented sample and enlarged a year later from 43 to 84 companies. The response rate was 35%—lower than average (Holtom et al., 2022). Significant effort was made to recruit companies: Written requests were sent via email, followed by personal telephone calls and offers of reports and recommendations related to the findings. Despite these efforts, the response rate was relatively low for several reasons. First, this population has been over surveyed. Managers are flooded with questionnaires. Second, high-tech companies operate in a highly competitive and stressful environment. In some cases, company policy forbids participation in studies. As another limitation, HR professionalism was based on the role holders' reports rather than employees' reports, as recommended by Gerhart et al. (2000). Finally, although TSCs are considered a global phenomenon and share similar contexts, the generalizability of our findings needs further study because we used a sample of TSCs in the Israeli high-tech sector. However, the Israeli environment provides researchers and practitioners with a convenient laboratory for studying and analyzing advanced managerial practices, because it is a “Maduradam” (microcosm) for developed countries in Western Europe and North America. Future research should study these relationships in other cultures and with a larger company sample.

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