Unleashing the Power of Your Organization Through HR Analytics

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A lot has been said and written recently about HR (or people) analytics, but it is still a nebulous concept to most. This article is a guide that will lead you through all the necessary steps to successfully introduce and execute HR analytics, making a fundamental impact on the culture of your organization. The intended audience includes executives as well as HR and analytics professionals.

We introduce the key concepts behind people analytics, and how it can be made an indispensable tool in your organization. The key take-away is that HR analytics is not just an implementation of technical concepts: most importantly, it requires an organizational commitment to defining a data-driven strategy and adopting a data-driven culture, and it is critically dependent on having the right leadership and facilitation skills, and the right resources, in place.

HR analytics and impact on organizational culture

Every organization has a distinct set of people challenges that it wants to address. People analytics means translating these challenges into a properly articulated set of objectives or metrics that can then in turn be mapped to what the organization knows about its employees, or what it would like to know.

This exposes the need to have an HR executive (a Chief Human Resources Officer (CHRO)) in the inner circle of top executive management (with the CEO and CFO) (a need highlighted in the July-August article in the Harvard Business Review: “People Before Strategy: A New Role for the CHRO” by Ram Charan et al.), who understands both the organizational needs at their most strategic level and the employee data landscape. If you can articulate how the two connect, your organization is ready for people analytics and the HR function likely has achieved the holy grail of strategic partnership.

Putting HR analytics in place will not be an easy journey, as it requires getting leadership commitment; educating management on the power of analytics; learning about and evaluating tools, technologies, and techniques; making this capability fit seamlessly with your existing processes; identifying new HR roles and skills; and training your staff on applying and using it most effectively. In the absence of a one-size-fits-all solution, it also requires careful consideration of build-versus-buy factors and a roadmap for rolling out analytics capabilities in stages.

Another important consideration is cost versus benefit. Having an HR analytics capability is costly. It requires considerable people and monetary investment during all
phases from conception to deployment, and this continues through ongoing training and operations. Against this cost picture is a very compelling value proposition: consider, for example, the cost associated with a bad hire. Recruiting and training costs alone can add up to a very substantial amount. Add to that the opportunity cost associated with not having the right person in that role (e.g. sales), and the cost will easily run into the hundreds of thousands of dollars. A good HR analytics implementation will pay for itself many times over.

This article will help you decide the best approach for driving cultural change in your organization through HR analytics, and identify what to expect of the HR and organization development and analytics experts that you will most likely need to consult.

**HR analytics framework …**

We describe a framework that connects data inputs, i.e., what we know (or don’t know, but would ideally like to know) about the employee and his or her role in the organization, to a set of outcomes or metrics that the organization is interested in.

In the middle is a complex model that analyzes the input data and predicts outcomes and generates metrics. In essence, the model represents (predictive) analytics capabilities that can technically be implemented in a variety of ways, for instance through the use of advanced statistics, data mining, and machine learning techniques.

This picture shows the component of the framework and the roles of the various participants.

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**HR Analytics Framework**

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
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<tr>
<td>Data Sources</td>
<td>IT builds the integration infrastructure and operates the analytics environment</td>
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<tr>
<td>Data Storage</td>
<td>Analytics experts identify proper analysis technique(s)</td>
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<td>Data Normalization</td>
<td>HR&amp;OD professionals interpret results</td>
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<td>Data Integration</td>
<td>Model refinement</td>
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<tr>
<td>HR Data Model</td>
<td>Outcomes against objectives, metrics, statistics, classifications, …</td>
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<td>Analysis Engine</td>
<td>Self-Service Executive Dashboards</td>
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<tr>
<td>Formal Specification of Objectives</td>
<td>Executive Reporting</td>
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<td>HR&amp;OD experts identify data sources</td>
<td>CHRO</td>
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<tr>
<td>HR&amp;OD and data experts jointly define HR data model</td>
<td>CHRO and CEO, CFO</td>
</tr>
<tr>
<td>HR&amp;OD experts identify objectives, analytics experts formalize them</td>
<td>Executive team effects data-driven cultural change!</td>
</tr>
</tbody>
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This article will not go too deep into the underlying techniques or mathematics, but is intended to show what is feasible, and, most importantly, highlight the fact that it is possible to educate and train executive management and HR professionals in the key concepts as well as on how to successfully apply them in their organization.

... and a new HR role
As the practice of HR analytics is evolving, so must the roles within HR. We argue for the creation of a new role within the HR function that combines HR and analytics skills, creating a true partnership with and a bridge between current HR and analytics staff.

It is someone who is able to bring all the data (known and unknown, accessible or hidden) together in new ways, can translate the CHRO's vision into action, and thereby makes the HR analytics environment a true catalyst for cultural change. The role requires a strong partnership with HR and organization development professionals to understand the dynamics of the organization and the people behind the data, and the impact on the culture. The role reports to the CHRO.

We believe that the role belongs in HR, even though some of responsibilities may belong on the operational side (a point made by Josh Bersin in his recent article “People Analytics Takes Off: Ten Things We’ve Learned”).

Desired outcomes
What are some desired outcomes and how can they be measured, classified, or predicted?
- Be able to not only measure the effectiveness of your training programs, but to take proactive steps to increase it.
- Make promotion recommendations or make succession planning decisions based on solid data.
- Optimally assign employees to roles, groups, or tasks based on a deep understanding of your employees’ abilities against your organization’s needs.
- Continuously assess and tweak the organization’s culture, thereby improving employee retention and engagement.

Ideally, this capability should be provided to the executives through dashboards, or even self-service.

How exactly this all works, is certainly dependent on the organization, but it helps to start with an overall framework consisting of a data collection capability, a capability to specify a set of desired outcomes and metrics, and a (predictive) analytics capability, as an executable model that connects data to outcomes, in the middle.
What data are we talking about?
The data to do that is here today. Some data is specific to an employee, while other data applies to the organization as a whole. Most organizations just don’t know (yet) what data is relevant to them, how to combine and correlate it, how to process and analyze it, and how to put it into action, i.e., moving from predictive to prescriptive analytics (Gartner defines a useful categorization of analytics as descriptive, diagnostic, predictive, and prescriptive).

Examples of types of input data include:
- Surveys and interviews (e.g. engagement, satisfaction, exit, etc.).
- Formal and informal employee comments; ‘buzz around the office’.
- LMS / learning data (internal and external).
- Applicant tracking data / applications / resumes / keywords.
- Salary data.
- External data (e.g. salary surveys, company evaluations / ratings on 3rd party websites, etc.).
- Recruiting data (e.g. number of openings, number of candidates, time required to fill opening, etc.).
- Retention data.
- Employee history within the organization (e.g. titles, previous assignments, etc.).
- Performance reviews.

Analytics engine
Now that we understand what data can be used as inputs, let’s focus on the analytics component of the framework. It executes a number of functions:

Accessing the data
First, it needs to address a variety of challenges that are due to the very nature of data: it typically resides in disparate systems; it lacks consistency of structure, meaning and interpretation across the organization; it is hard to correlate to other data; it is often unstructured; it can be quantitative or qualitative; it may lack quality; some data is stored, some comes in streams, some data needs to be calculated on the fly; etc. Often, data that would be very useful in assessing employees is entirely unknown (e.g. frame of mind, personal or economic situation, etc.).

This exposes the following core requirements: 1. the need for a common HR data model; 2. a data integration capability, 3. a data normalization capability, and 4. a data storage capability. We briefly elaborate on each.

HR analytics data model
To make sense of the various types of data and their relationships, the best way to proceed is to develop a data model specific to HR. It will allow all practitioners in the organization to be ‘on the same page’ when it comes to understanding the data. The model describes and provides a visual representation of the structure and meaning of data
entities, their key attributes, and their relationships to other data entities. Generic models of HR data are available, but they typically need to be substantially extended to be useful to a particular organization. However, it is well worth the effort to do so.

Data integration
Given the considerable variety of relevant data, the technical capability needs to be in place to integrate the data from various sources into a coherent set of data that can then be analyzed and cross-referenced by the analytics engine. This is where the data model is key: it provides a visual understanding of the entire data landscape including relationships that may not have been previously uncovered or considered.

Data normalization
The analytics engine will be most effective if it can operate against normalized data. A simple example is survey data: some surveys have a scale of 1-5, some 1-10, some L-M-H, etc. By applying normalization, all survey data can be treated uniformly. It will help if all surveys across an organization follow the same guidelines, something that can be achieved through executive commitment to the HR analytics effort.

Data storage
Data mining and predictive analysis techniques will work best if the data is stored in one place, after being integrated and normalized. Various ‘big data’ storage approaches exist, and which one to pick will depend on the size and scope of the effort in your particular organization.

Unleashing the power of the data
Now that all relevant data is integrated, normalized, and stored, we need a set of algorithms and machine learning techniques to unleash the innate predictive and analytic power of the input data.

Specifying objectives
Before we can do that, metrics and objectives, qualitative and quantitative, examples of which we gave above, need to be specified and related to the set of relevant input data types. An analytics expert will be able to capture these specifications in a formal notation, which can be automatically interpreted by the (predictive) analytics engine, described next. In recent years, considerable effort has been spent on standardizing such a notation, for instance the Predictive Model Markup Language (PMML) (https://en.wikipedia.org/wiki/Predictive_Model_Markup_Language).

Analyzing data (descriptive analytics) and making predictions (predictive analytics)
Depending on the pairings of data types and measures or objectives, appropriate (predictive) analysis techniques are then applied (e.g. statistics, regression, correlation, classification, machine learning, etc.). All of these techniques have one thing in common, i.e., they take a set of input data and calculate which combinations of inputs will satisfy a specific objective, match a certain metric, or result in a certain classification.
Traditional algorithmic approaches that take inputs and produce outputs through a sequence of well-defined steps may work well to correlate some data to outcomes (e.g. when calculating a metric from an input set of data), but the solution to some of the hard problems we are trying to solve here may be far too complex for humans to capture as discrete steps, hence the need to apply much more sophisticated techniques, such as machine learning (e.g. when predicting retention rates from employee profiles). Which techniques are picked requires careful analysis of the data and the objectives, and the knowledge of a data and analytics expert.

**Operating the engine…**

Once the steps outlined above are taken, i.e., identify relevant data sets, specify outcomes, and building the analytics engine, trained HR professionals should be able to operate it in a relatively hands-off manner (supported of course by trained IT staff), focusing on the results and predictions that it provides, and putting these into action. In addition, whatever is learned from operating the environment should be used to refine the model, and possibly be used as inputs into the model itself.

**… to drive cultural change**

Merely operating the engine would fall short of the promise of HR analytics. We earlier pointed out the need for an HR analytics champion. In the absence of such a role, HR analytics may well turn out to be yet another ‘check the box’ effort. The HR analytics champion will constantly enrich the organization’s understanding of its data through continuous conversation with HR and organization development peers. This ensures refinement of the desired outcomes and the exploration of more effective models. The HR analytics champion trains HR professionals in operating the analytics environment, provides thought leadership, and socializes and unleashes the power of analytics across the entire organization.

**Now what?**

We never said that it would be easy, but we’re hoping that this article has clarified what HR analytics is, how it works, and how it can be useful to your organization.

How it will work specifically for you, is something that requires the combined skills of HR / organization development experts and data experts, working hand in hand with your own experts. It also requires organizational readiness for the journey and where it may lead, and that your executives and staff be coached and trained on the most effective use of this new capability.

**Cultivate Consulting®,** a consultancy specializing in leadership, executive coaching, organization design and development, and advanced analytics, is uniquely qualified to help you uncover and realize the potential of HR analytics. We can help you define the value proposition and build a compelling business case, identify the right mix of HR and analytics skills for your organization, identify the right set of tools and techniques, evaluate products, and help you create a truly data-driven culture.

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We have many years of combined organization design and development as well as advanced data analytics experience, working with small and medium sized organizations to give them the power to make data-driven decisions, specifically in the area of employee recruiting, retention, and engagement.

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