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PARC – Project of Automated Resource Sharing within Communities
A project in social and organizational innovation
Canadian context

JMJ Aerospace is considering a radical change in human resource management in high technology industries, particularly within the aerospace and metallurgy industries. The project of Automated Resource Sharing within Communities (PARC) is intended to provide solutions for securing and stabilizing the workforce. Developed as an expert system, the PARC initiative is on its way of receiving a \$1.2M grant from the Ministry of Economic Development, Innovation and Export Trade (MDEIE) under the recent call for proposal within the Quebec strategy for research and innovation (*Stratégie québécoise en recherche et en innovation (SQRI)*).

The competitiveness of the Canadian aerospace industry is primarily achieved through the quality, efficiency and competency of the human resources supporting its activities. Consequently, optimal resources management must be industrialized, in association with government policies and programs, in order to maximize the usage and the retention of human capital and knowledge for the benefit of our growing industries. In addition, the Canadian legislation context currently brings several proposals to amend existing laws under the Bill C-38, especially those concerning retirement age and Employment Insurance. Concomitantly, the PARC project potentially brings solutions for the development and the implementation of an intelligent system that aligns the needs in human capital to the supply of the required workforce. The PARC project will lead to prospective breakthroughs in terms of an optimized workforce management, for example, in areas concerning the use of Employment Insurance, contribution of retirees, work-family balance and the integration of immigrants.

In recent years, severe cuts in R&D programs, in multiple sectors, have driven the loss of valuable and skilled resources acquired at extraordinary costs during the prosperous years before the 2008 crisis. Employers who chose to hold onto rather than reduce their staff, then had to continue to support the already high payroll in a period of major financial difficulties thus increasing the risks associated with the sustainability of their organisations.

The demand for intellectual capital within the current context of globalization and fierce global competitiveness, as well as the anticipated shortage of skilled labor for demographic reasons, will bring an increase in short-term demand of resources which will inevitably prove more costly in the long run. Consequently, this will result in major impacts on Canada's ability to maintain the competitive edge of its leading industries. The aerospace and metallurgic industries, as well as other synergistic ones, such as transportation, energy, Information Communication Technologies and life sciences will find solutions within the PARC initiative.

Additionally, it is acknowledged that the industry at large must retain its talent and develop innovative policies for human resources and workforce management in general. Companies are becoming

increasingly flexible in managing schedules, parental leave, in the allocation of holidays, etc.. Therefore, rather than steal them, the initiative provides companies with an opportunity to share these prized workers. The proposed initiative of Automated Resource Sharing within Communities (PARC) is aiming to go one step further by systematizing the logistics around the workforce, through coordinated planning and collaboration management by:

- Sharing the hiring of resources among companies
- Managing the mobility of resources amongst companies
- Managing a common pool of resources

For the first time, companies operating in a cyclical industry will benefit from a systematic alignment between production levels and their adequate labor requirements. The initiative will also create a pool of skilled resources where participating companies can turn to according to their production cycles and fluctuations. For example, during peak periods, companies have the opportunity to add staff to their labor force, then make this resources available, when their production rate decreases, to other firms within the community of participating enterprises.

In a context of skilled labor shortages, the PARC initiative can only result in greater productivity, increased competitiveness and enhanced retention of knowledge within the pool of available resources, while targeting employment sustainability.

Demonstration project

We propose to develop a mathematical model of resource sharing by working on set of conditions under which the proposed system would be most effective, sustainable and superior to existing practices. The proposed mathematical model will be based on game theory methodology and will describe strategic decision making mechanisms of multiple actors interacting in variable conditions. This model will result in a technological platform that will enable the intelligent processing and management of multiple movements of resources and will optimize the concept and scenarios around resource sharing.

Benefits to Canada

Among the many advantages, the proposed initiative of automated resource sharing within communities of enterprises should have multiple benefits for employers, workers, the industry, and society as a whole. Employers who participate in the system of resources sharing will have the opportunity to efficiently synchronize their workforce to their production cycles. Through this optimal alignment, they will increase productivity and consequently, their competitiveness. Aiming to create employment sustainability, workers will enjoy amplified job security, thus their mobilization and motivation augmented.

Through a concerted action, this impact will extend; the industry 's international competitiveness will progress, making it increasingly attractive to skilled foreign workers.

At the government level, using a system for sharing resources, would decrease redundancies and thus reduce dependency on income protection programs.

Once developed, the system could also find applications within other fields, such as businesses faced with seasonal fluctuations and those holding variable production schedules and cycles.

The proposed initiative will completely sway the human resource management practices within companies and organizations that are now competing for top talent. The Canadian government would greatly benefit to join this innovative initiative now and contribute to strengthening the Canadian workforce, especially in competitive fields such as aerospace and metallurgy.

For further details on the PARC initiative, we attach the project submitted September 12, 2011 to the Ministry of Economic Development, Innovation and Export Trade (MDEIE) as part of the call for proposals within the Quebec strategy for research and innovation. Several probing questions have also been addressed by the MDEIE which we have replied to concisely. If you are interested, we will ask the MDEIE if we can share their questions and our answers with you.

The appended project presented here is not yet redrafted within the Canadian context. Following a return from you, we will adapt the angles in order to address the relevant Canadian government programs.

Hoping that the Canadian government takes the opportunity to strengthen its aerospace industry by optimizing the management of its labor power, we remain available to present the project in the Canadian context and answer any questions arising from the overview presented of this novel concept for Automated Resource Sharing within Communities (PARC).

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