# Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Executive Summary</td>
<td>3</td>
</tr>
<tr>
<td>1 Demographics</td>
<td>5</td>
</tr>
<tr>
<td>2 Work Motivations</td>
<td>12</td>
</tr>
<tr>
<td>3 ‘Glocal’: Where Global and Local Cultures Meet</td>
<td>17</td>
</tr>
<tr>
<td>4 Labor Movements and the Workforce</td>
<td>20</td>
</tr>
<tr>
<td>5 Education, Skills and Learning</td>
<td>26</td>
</tr>
<tr>
<td>6 Productivity in the Knowledge Economy</td>
<td>32</td>
</tr>
<tr>
<td>7 Technology’s Impact</td>
<td>37</td>
</tr>
<tr>
<td>About Manpower</td>
<td>41</td>
</tr>
<tr>
<td>Bibliography</td>
<td>42</td>
</tr>
</tbody>
</table>
Introduction

In 2003, Manpower issued its first study, entitled The Future of Work, in conjunction with a cross-section of transnational companies and multinational agencies such as the International Labor Organization (ILO). The aim of that study was to offer a perspective on the major trends that are transforming the supply and demand of jobs throughout the world, and to assess employment quantity, quality, type and direction.

Given the emergence of Asia as an industrial and economic power, and the profound transformations taking place in the mature economies of North America and Europe, Latin America was not the primary focus of attention in that 2003 study.

Recently, comments have been made in some international forums to the effect that Latin America may have moved out of the public eye. However, there is no doubt that the region’s importance, in demographic and economic terms as well as its cultural and geographic characteristics, points up the urgent need to study Latin America’s medium-term possibilities and challenges. Such an analysis is vital not only for regional leaders anxious to boost development, but also for international leaders who are witnessing a swift transformation of socioeconomic structures around the globe and who, like the regional leaders, seek opportunities for generating value in a sustainable manner.

This Manpower study, The Future of Work in Latin America, will surely spark the interest of those with an eye on the region’s medium-term potential. It is written in the hope of encouraging Latin America’s key players to accelerate the decisions necessary for creating a better future scenario, while serving as a point of reference for those working to bring under control the destructive risks persisting in the region.

In late 2005 and early 2006, with the assistance of Grupo IDM in Mexico City, we interviewed opinion makers, international labor experts, business owners, academics and public administrators in Argentina, Brazil, Chile, Colombia, Costa Rica, Mexico, Peru and Venezuela, representing a broad range of perspectives on the most important challenges and opportunities facing Latin America in the coming years.

In order to establish the most direct and incisive comparison possible with the 2003 study, we have synthesized and organized the information into seven central themes:

- Demographics: How will the region’s population change by 2015, and by 2025?
- Work Motivations: What will motivate people to work? What kinds of incentives and benefits will be appropriate?
- ‘Glocal’: Where Global and Local Cultures Meet: How can we reconcile corporate values with local values? How will Latin American companies adapt to the world business environment? How will global forces affect local work?
- Labor Movements and the Workforce: Work is moving to where there are workers capable of doing it, and people are migrating to find work that satisfies their aspirations. How will the migration of people and jobs evolve?
- Education, Skills and Learning: What’s happening with Latin American education? What new skills and abilities will be required? Who will be responsible for offering the necessary training and education?
- Productivity in the Knowledge Economy: What are the factors that will transform Latin America into a competitive region? What will be needed to maintain a competitive edge?
- Technology’s Impact: How will new technologies change the places and ways in which we work?
Although we must not forget that we have yet to solve many basic issues that have hindered our full development, never before has Latin America had such promising opportunities as those awaiting us in the next two decades.

This study will have fulfilled its objective if it helps the region’s economic and social leaders, as well as global decision-makers, to appreciate, in all its dimensions, the crossroads at which Latin America finds itself and the factors that will determine its future. A young and numerous workforce – more urban, flexible and mobile, more technologically prepared, with greater participation by women, better educated, and more assertive – is demanding infrastructure, health care, education, services, and opportunities for work and personal growth.
The worldwide rise in the prices of commodities and goods produced in Latin America – due to an increase in international demand – plus a large, young workforce with fewer economic dependents than in the past, represents a unique and historic growth opportunity: a demographic dividend in a region with abundant economic resources.

But this opportunity has an expiration date: if there are not enough highly productive jobs to take full advantage of the demographic dividend, it will leave an unimaginable deficit resulting from retirement pensions. And if the relative abundance of economic resources is not invested in infrastructure, education and services, it will not create enough production capacity to compete efficiently with those who, especially in Asia, are currently increasing the world demand for energy and goods.

In terms of opportunities, this study emphasizes how the region’s population is becoming one of the most urbanized on the planet. By 2015, Latin America will have 10 of the 60 largest cities in the world, and less than 20% of its total population will be rural. If Latin America continues to grow, we can expect its urban middle class to grow proportionately, with increased access to higher education, purchasing power and housing, as well as great expectations.

The region’s economies will be under intense pressure to create jobs that satisfy the rapid incorporation of women into the workforce, as well as the young people of the demographic dividend generation. If not enough good-quality jobs are created, young people will be pushed into the informal economy, thereby generating greater structural problems for the long-term financing of growth, public services and retirement benefits.

Migration to the United States will continue to increase during the next 10 years. In absolute terms, emigration will be greatest in the area spanning from Panama to Mexico, whose population will have a relatively larger capacity to be economically productive, by virtue of the fact that it is young, educated and has work experience. Latin America is faced with the clear challenge of establishing the most favorable working conditions, in order to attract or retain talent that has emigrated or wishes to do so.

Along with the social and socioeconomic changes that lead to emigration, the arrival of the younger generation will offer an opportunity to assimilate global changes. At the same time, Latin America will be presented with the great challenge of creating jobs for older workers, providing an education that closes the digital gap, and incorporating itself into the international economy.

Unfortunately, most Latin American countries still have an ambivalent attitude toward globalization. This limits the possibilities for taking full advantage of opportunities, as well as the ability to blend cultural values throughout the region. As a result, international decision-makers may lose interest in the region. In the next few years, business leaders, academics, politicians and social organizations must change their way of thinking, and must view the future with competitive assertiveness, realistic optimism and true commitment. This change will be essential, so that Latin America does not squander favorable circumstances during the next decade.

To take advantage of the opportunities offered by globalization, there must be more decisive and open multicultural integration, a deeper understanding of cultural differences, and greater social responsibility. Local economies must reform their structures, striving for specializations that render them competitive on an international scale, without failing to maintain and grow their domestic markets.

Latin America must concentrate on the creation of knowledge; if it does not, it will find itself seriously limited in coming years. The region must be prepared to incorporate and value new technologies, and to establish faster and smarter ways to adopt them. It will be critical for the private sector and public and private universities to work together, achieve economies of scale, and focus on educational quality and relevance.

Currently there are isolated efforts to create new technologies, in petrochemicals, pharmaceuticals and biotechnology (Mexico, Brazil and Argentina), and the combination of these three industries offers a wide range of opportunities for new high-tech products. This implies a restructuring of the region’s resources that will be painful for companies, the state and individuals, but everyone must understand that this
is the price to be paid for the incorporation of modern and productive work in these new value-added systems. The real danger lies in failing to carry out such a restructuring; saving in the short term will cause the region to pay a very high long-term price.

Educational systems worldwide are changing quickly, with an emphasis on developing scientific knowledge and so-called soft skills, and on promoting a culture of values and individual responsibility. However, Latin America has yet to solve the problem of offering good-quality basic education. For that reason, a scarcity of talent exists in sales, technical areas, and engineering. This shortage will probably become more acute over the next decade if appropriate measures are not taken.

It should be noted that talent will seek out opportunities to apply its knowledge and skills, and to gain new multicultural experiences.

To enable citizens to achieve the necessary skills and conditions, to attract the planet’s best talent and to recover what has been lost, the region’s companies, universities and governments will need to be creative and better focus their resources.

Latin America’s workforce must adopt a new work culture, abandoning the traditional paradigms: strict schedules, thinking that the company is responsible for training, basing wage increases on seniority rather than productivity, unwillingness to sacrifice, and lack of determination to achieve goals, among other aspects.

Companies must implement compensation systems that encourage productivity, focusing on results, efficiency, creativity and innovation within an ethical framework of commitment and a sense of belonging. This should make it possible to introduce new approaches that adapt to the motivations and interests of highly skilled workers, such as flexible schedules, horizontal and flexible structures, and telecommuting.

Each person will need to take responsibility for acquiring the knowledge and skills needed for employment, as well as his or her own education and lifelong learning. There will be a tendency toward extreme individualization and a decrease in identification with and loyalty to traditional institutions.

These tendencies will be accelerated by the use of information and communications technologies as basic work tools, and as a substratum of all physical and intangible transactions. Thus, technological training is an indispensable aspect in educational curricula, given the fact that information and communications technologies are defining work processes.

In the near future, Latin America’s productive potential will be unleashed, not only because of the region’s population and favorable geographic position, but also because the reigning mentality will change with the arrival of a new generation of leaders, executives and workers who are better prepared, oriented toward the global economy, and ready to fight for a space in tomorrow’s competitive world. This opportunity merits a priority position on the agenda of leaders who have a truly global vision.
1 Demographics

1.1 Despite intense demographic change on a worldwide level, the relative importance of Latin America's population will remain constant over the next 20 years.

Global population dynamics

By the year 2015, the population of Latin America will have increased by 13%, while the world population will have grown by 12%. Latin America is the second fastest-growing region in the world, surpassed only by Africa.

This growth, however, is slowing. During the next decade, Latin America’s population will grow 34% less than at the end of the 20th century. The same phenomenon is seen in Asia.

Figure 1.1. Percentage of population increases by the year 2015.¹

Very strong contrasts among the world’s populations

While Africa will continue to grow very quickly (22%) in the coming decade, Europe’s population is decreasing (-3%).

The population of Africa will be forced to emigrate to Europe due to a shortage of resources required for economic survival. The causes of this shortage include low production levels and pressures on health care systems related to the high incidence of AIDS in the region, among other factors.

The populations of Asia and North America will continue to increase, but at rates lower than those of Latin America.


Latin America will continue to house about 9% of the world’s population. In absolute terms, this means that the region will still represent a significant portion of the planet’s inhabitants, with around 628 million of the world’s 7.2 billion people worldwide estimated for the year 2015, and 690 million of the 7.85 billion people worldwide by the year 2025.

**Figure 1.3. Comparison of world population and Latin America’s population.**

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>World population*</td>
<td>7,200</td>
<td>7,850</td>
</tr>
<tr>
<td>Latin American population*</td>
<td>628</td>
<td>690</td>
</tr>
<tr>
<td>Latin America as percentage of world’s population</td>
<td>8.72%</td>
<td>8.79%</td>
</tr>
</tbody>
</table>

* Millions


Regional and urban dynamics

1.2 Latin America’s population is becoming one of the most urban on the planet.

Migration to cities

In the last 20 years, migration from rural areas to cities has resulted in a 30% reduction in Latin America’s rural population, and according to forecasts, this segment will decrease another 27% by 2025.

In 2015, rural inhabitants will represent less than 20% of the region’s total population.

The decline of the rural population

Even though the birth rate in rural areas is significantly higher than in urban areas, by 2025 there will be 140 million more people in Latin American urban areas and 13 million less in rural areas, compared to 2005.

The region’s rural population stopped increasing in the year 2000, even though the world population is expected to keep growing until 2015. By 2025, the percentage of rural inhabitants in Latin America will be about the same as in the most developed regions of the world.

Latin America will continue to be an attractive market, not only because of its demographics, but also thanks to its urban concentration: in 2015, 10 of the 60 largest cities in the world will be in Latin America: São Paolo, Mexico City, Buenos Aires, Rio de Janeiro, Lima, Bogotá, Santiago, Monterrey, Guadalajara and Guatemala City. Each of these cities will have more than five million inhabitants and together they will be home to more than 110 million people.

By the year 2015, São Paolo will be the fourth largest mega-city in the world, while Mexico City will be the sixth largest.

Four of the 21 urban agglomerations considered mega-cities in 2015 will be located in Latin America, with a total concentration of around 80 million people: São Paolo, Mexico City, Buenos Aires and Rio de Janeiro. These four cities will represent 14% of the region’s total population.

By the year 2050, the population of Latin America will be concentrated as follows: 31% in Brazil, 17% in Mexico, 36% in the rest of South America, and 16% in Central America and the Caribbean.

---

1 Economic Commission for Latin America and the Caribbean (ECLAC), Statistical Yearbook of Latin America and the Caribbean, 2004.

1.3 Latin American society will continue to be predominantly young, with a much lower proportion of economic dependents than at the present time.

Duration and scope of the demographic dividend

During the next decade, the proportion of economic dependents relative to the workforce will decline considerably, as a result of the rapid incorporation of young people, the inclusion of women and a falling birth rate.

Latin America will reach the peak of its demographic dividend in 2015, when more than two out of three inhabitants (including senior citizens and children) will be employed. The region’s average age is currently 29 years, and according to predictions it will not exceed 35 years at that time.

Although Latin America will enjoy an important demographic dividend, it is also clear that the population pyramid will soon be turned upside down: by 2025, the ratio of economic dependents to the workforce will rise once again, not because of any increase in the number of children, but because of the population’s relative aging.
Figure 1.6. Changes in population pyramids (2005 – 2025).\(^5\)

1.4 In the next 15 years, women’s presence in the workforce will continue to increase quickly.

Women’s rapid inclusion

As information about and access to birth control methods contributes to a lower birth rate, women’s participation in the workforce will grow from a mere 30% two decades ago to more than 40% by 2025.

For the first time in history, the number of women entering Latin America’s workforce in the coming decade will be equal to the number of men.

Likewise, the number of women enrolled in universities is already greater than the number of men. This trend is expected to increase in coming years.

1.5 Life expectancy has increased in Latin America and, as a result, the percentage of senior citizens is growing significantly.

An increase in the senior population

Two decades ago, life expectancy at birth in Latin America was 65 years, the age that coincides with the legal retirement age in most countries. By 2015, life expectancy in most of the region’s countries will be at least 75 years, ten years more than the average retirement age.

Pressure on pension systems

This trend will increase pressure on both public and private pension systems, meaning that pension programs guaranteeing a retirement age lower than 65 years of age will become less and less sustainable.

Changes in the traditional nuclear family as well as a weakening of the concept of the extended family will increase the demand for senior citizen services in all social strata.

1.6 Management of the demographic transition is one of the region’s greatest development challenges during the next 15 years.

Historic opportunities and challenges

Latin America will have a unique development opportunity if the region takes advantage of the favorable ratio of economic dependents to the workforce in the next two decades.

In order to make full use of this demographic dividend, Latin America needs to create sufficient good-quality employment for the 50 million people who will enter the workforce in the next 10 years: in 2015, the Latin American workforce will total almost 300 million people.

Increased demand for services and infrastructure

In order to meet the challenges of job creation and take advantage of its demographic dividend, Latin America needs to develop widely available, quality educational and training opportunities that meet current economic demand, as well as the needs generated by demographic changes.
This transition will also impose the challenge of providing sufficient public services for urban centers that are more and more saturated with unplanned and large-scale migration.

Urbanization, along with the integration of women into the workforce and the increased population of senior citizens, will also result in significant increases in demands for personal and health services.

The need for reform

Guaranteeing the financial capacity to maintain pensions, today and in the future, will depend to a large extent on the success that Latin American countries have in making good use of their demographic dividend, with formal employment linked to systems offering social security. These countries will also need to make changes in their public and private systems; these may include substantial modification of retirement programs, resulting in greater pressure for creating jobs for young people.

Demographics

Relevant data for Latin America

- By the year 2015, the population of the region will grow by 13% versus 12% worldwide; this growth rate is 34% lower than in the 20th century.
- The population of Latin America will reach 628 million by the year 2015 and 690 million by 2025; this represents 9% of the world population.
- The rural population will decrease by 27% and will represent less than 20% of the region’s total population.
- 10 of the 60 largest cities in the world will be located in Latin America, each with over 5 million inhabitants; together they will house more than 110 million people.
- São Paulo will be the fourth largest city in the world and Mexico City the sixth largest.
- The average age in Latin America will not exceed 35 years in 2015.
- Life expectancy will increase from 65 to 75 years.
- 50 million people will enter the workforce in the next 10 years, making a total of 300 million.
2 Work Motivations

Deep social contrasts in Latin America

2.1 While the most coveted skilled workers are making more sophisticated demands for satisfactory working conditions, the basic concern of most of the labor force continues to be higher wages.

Within the same region, the problems of the most advanced countries will coexist with the limitations and demands of the least developed countries.

As in the rest of the world, Latin Americans are questioning the viability of standardized benefits packages: the most talented workers reject them, while local conditions vary so radically that these packages are irrelevant for some groups.

In addition to monetary compensation, companies should take into consideration specific and multifactorial conditions, the most important being age, gender, geographic location, cultural interests and the effects of social surroundings, among others.

2.2 The deep disparity in income distribution is one of the region's structural problems and will continue to slow growth.

The economic crises suffered by Latin America in recent decades have not allowed the region to reduce the income distribution gap: an entire generation of macroeconomic stability will be required in order to consolidate a middle class in Latin America. Meanwhile, the lack of equality generates pressures and creates expectations that make labor relations more difficult, while they are also worsened by the urbanization process and the concentration of new capital.

On the other hand, if current macroeconomic stability continues, it will result in greater access to sources of financing that promote the generalized consumption of durable goods and access to real estate, thereby generating a positive cycle of property, credit, consumption and production.

Figure 2.1. Map of the Gini coefficient.\(^7\)

\(^7\) Source: Medina, Fernando. Consideraciones sobre el índice de Gini para medir la concentración del ingreso (The Gini Index and Income Concentration), Economic Commission for Latin America and the Caribbean (ECLAC), Chile, 2001.

Note: The Gini Coefficient is a number between 0 and 1, where 0 corresponds to absolute equality (income distributed evenly) and 1 corresponds to absolute inequality (one person has all the income, while everyone else has zero income).
2.3 Social inequality will continue to exist in Latin America. However, thanks to current economic and political stability and advances in public services including health care and education, most countries in the region will enjoy greater equality in the coming decades.

Latin America is about to experience the arrival of an authentic middle class, created by greater access to higher education. Access to the mass media and the speed of information and cultural messages will raise young people's aspirations and desire for world-class material possessions and comforts. They will have access to services and opportunities previously available only to a minority, as well as the work values, competition and discipline that will help them achieve material satisfaction.

Access by this middle class to the labor market, along with the demographic dividend, will increase pressure on this market, but will also generate significant opportunities.

Growing expectations and the demand for more intellectual work

2.4 Failure to create sufficient employment, combined with the lack of a real correlation between university degrees and business needs, creates one of the main motivational obstacles for the region: frustration.

Thanks to new information and communications technologies, along with the cultural content of globalization, young people in Latin America are acquiring aspirations and motivations similar to those of the rest of the developed world, despite the fact that they do not have the personal conditions or surroundings required to access the desired comforts and lifestyle.

Often they do not have quality academic training, which means they do not always have the skills required to perform at the same level as their counterparts in developed countries, thus creating a gap between company evaluation and selection standards and individual expectations.

2.5 The established aspirational model and greater access to formal education will increase the demand for more jobs of an intellectual nature, although the number of these kinds of jobs will not grow at the rate required.

Thanks to globalization of the media and entertainment, activities of a more intellectual nature have become even more desirable. Young people are presented prototypes of economic success and personal development unavailable on a mass level.

As Latin American economies become more sophisticated, the importance, relative demand and economic compensation of these kinds of jobs will grow. Nevertheless, the number of jobs of this type will probably be much lower than the potential demand of young people in the region.

In addition to this growing level of aspirations, the demand for health care and other personal services related to upcoming demographic, economic and social conditions will also increase.

The structural deficiencies of Latin American educational systems will continue to intensify this pressure, depending on the capacity of these systems to provide young people the skills required to compete efficiently in the intellectual marketplace. These skills include the ability to speak other languages, the development of analytical skills, and culture in general. Deficiencies in these fields will mean that many young people in Latin America will not have access to supervisory and management positions, thus limiting their possibilities for formal employment outside their countries of origin.

The challenge of how to respond to young people's expectations will have to be met by Latin American families, academia, businesses and governments. They will have to create a balance between the need for certain kinds of work that are not necessarily the most desirable, the disparity between current formal education and the need for world-class skills, and the constant influence of world stereotypes. All of these factors will hinder young people's complete and functional integration and identification with the work available to them.
Another enormous challenge will be the complete incorporation of women.

The progressive and accelerated incorporation of women into the workforce will result in the need for highly relevant cultural changes in all of Latin America. This will modify the functioning of the traditional family and demand men’s greater participation in household tasks, as well as a stronger need for child care, day-care centers, extended school hours, and flexible work schedules.

As with other social phenomena, the incorporation of women in Latin America’s labor force reflects deep contrasts: on one hand, there are high-level jobs in which women’s participation is now totally accepted; on the other hand, the more general reality reveals a gap that will be difficult to close. Indeed, the average salary of women is 25% lower than that of men working under equal circumstances.

**Figure 2.2. Salaries by gender, according to years of education (percentages), 2004.**

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>0 - 5</th>
<th>6 - 9</th>
<th>10 - 12</th>
<th>13 or more</th>
</tr>
</thead>
<tbody>
<tr>
<td>Venezuela</td>
<td>82</td>
<td>80</td>
<td>79</td>
<td>86</td>
</tr>
<tr>
<td>El Salvador</td>
<td>77</td>
<td>76</td>
<td>89</td>
<td>82</td>
</tr>
<tr>
<td>Colombia</td>
<td>85</td>
<td>87</td>
<td>83</td>
<td>80</td>
</tr>
<tr>
<td>Argentina</td>
<td>89</td>
<td>66</td>
<td>81</td>
<td>69</td>
</tr>
<tr>
<td>Paraguay</td>
<td>68</td>
<td>77</td>
<td>86</td>
<td>73</td>
</tr>
<tr>
<td>Ecuador</td>
<td>132</td>
<td>69</td>
<td>79</td>
<td>73</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>65</td>
<td>67</td>
<td>83</td>
<td>70</td>
</tr>
<tr>
<td>Nicaragua</td>
<td>76</td>
<td>75</td>
<td>72</td>
<td>72</td>
</tr>
<tr>
<td>Honduras</td>
<td>77</td>
<td>72</td>
<td>80</td>
<td>69</td>
</tr>
<tr>
<td>Panama</td>
<td>52</td>
<td>53</td>
<td>84</td>
<td>71</td>
</tr>
<tr>
<td>Guatemala</td>
<td>89</td>
<td>83</td>
<td>73</td>
<td>87</td>
</tr>
<tr>
<td>Chile</td>
<td>87</td>
<td>80</td>
<td>80</td>
<td>70</td>
</tr>
<tr>
<td>Peru</td>
<td>82</td>
<td>83</td>
<td>85</td>
<td>75</td>
</tr>
<tr>
<td>Uruguay</td>
<td>86</td>
<td>71</td>
<td>78</td>
<td>67</td>
</tr>
<tr>
<td>Brazil</td>
<td>66</td>
<td>62</td>
<td>63</td>
<td>61</td>
</tr>
<tr>
<td>Bolivia</td>
<td>74</td>
<td>84</td>
<td>71</td>
<td>64</td>
</tr>
<tr>
<td>Mexico</td>
<td>61</td>
<td>83</td>
<td>62</td>
<td>62</td>
</tr>
</tbody>
</table>

---

**The motivational model and business transition**

2.6 The challenge of the coming decade will be to align the motivating factors of an attractive economic compensation with a microclimate suited to local culture, thus generating a sense of belonging.

Companies in the region find it hard to maintain high motivational levels in the workplace, due to the incorporation of new evaluation, compensation and career development methods that have yet to be assimilated in Latin America.
2.7 More complex productive processes and greater demands for services will imply greater emphasis on personal development and the need to identify with the organization’s goals.

In order to adjust to the demands of modern processes and increase productivity and innovation, the following requirements must be met:

- People will need to think of work as something more than the tasks they are asked to perform.
- Organizations will have to communicate to their employees the importance and impact of their work, in order to give them an understanding that goes beyond simple economic factors.
- Organizations and people will need to find mechanisms for participation in the direction and focus of efforts to achieve goals and in the planning and execution of strategy.

In order for organizations to have people who are genuinely committed to the challenges of productivity and innovation, they will also have to find models of learning and personal development, and accept and promote risks such as the mobility of people inside and outside the company.

It will be more common to see people promoted to positions in different countries, which will give organizations a greater capacity for retaining personnel, and will also result in new ideas and aggressive competition that will enrich their vision.

2.8 The growing demand for innovation and dynamism will also require organizations to be open to experimentation and even error, and will promote the idea of flexible working conditions.

Latin America’s view of labor relations will have to change rapidly: instead of expecting people to conform to rigid processes, organizations will have to allow people more freedom and creativity, within their spheres of activity and expected results.

The uncertainty generated by the loss of control over activities will be one of the greatest barriers to this change: Latin American culture and tradition have always been alien to the promotion of responsible freedom in organizational and productive processes.

As a result it will be hard for organizations and individuals to change the status quo:

- In the case of individuals, the challenge will consist of understanding how to use a new sphere of activity, thinking about the well-being and growth of the organization as necessary elements for the community and personal development.
- Organizations will need to offer new variable pay scales that are more attractive and that offer greater economic benefit, while also promoting individual productivity. This implies overcoming the rejection and distrust that exist in Latin America toward variable compensation systems that were not communicated correctly in the past.

Systems that promote productivity, results, greater efficiency, and creativity and innovation should also allow flexible schedules, the possibility of working in horizontal structures, and should promote, at least partially, the possibility of working in remote locations. In other words, they will have to adapt to the motivational needs of highly skilled individuals.

Unfortunately, there are still far too many systems in which fixed compensation is the most important element in labor relations, rigid structures and systems discourage motivation and do not allow the individual to identify with goals, and neither participation nor creativity are encouraged.
The company, the individual and motivation

2.9 Multinational companies originating in Latin America or having a significant presence in the region will offer highly skilled workers the opportunity to achieve managerial and highly responsible positions.

Around 40% of companies worldwide have increased the mobility of their employees among their subsidiary companies.

Companies in Latin America are transferring employees to other countries in the same region: 53% of companies in Latin America are engaging in this kind of mobility, while in regions such as North America and Europe, such transfers amount to only 17% and 6% of companies, respectively.

Transferring talent will be a great opportunity to establish a generation of Latin American managers, who will be more likely to have an unbiased understanding of the cultural similarities and differences between countries, and of the social and economic challenges required to exploit the region’s productive potential.

Nevertheless, in the next two decades, as global processes are consolidated, resistance to regional mobility on the part of various groups in Latin America will be a disadvantage for company executives.

Increasingly complex motivations and demands for attention to surroundings

2.10 In light of the sophistication of motives influencing highly skilled people’s decisions regarding where to work and with whom, companies in Latin America will have to maintain a good reputation within their communities, in order to attract and keep world-class talent.

On a global level, the war to attract talent with outstanding capabilities has intensified, including aggressive recruitment practices directly involving top-level executives.

This will result in companies positioning their brands and professional and economic development projects within the reach of the best-prepared young people of the region.

Companies’ activities will not adjust to traditional geopolitical borders and will serve as bridges between academic institutions and production, seeking long-term synergies aimed at attracting people with outstanding talents.

2.11 Not only the overall reputation of the organization and the strength of its brand will be used to attract Latin American talent: levels of social and environmental responsibility, as well as opportunities for personal expression and individual growth, will also be key differentiators for companies seeking talent with greater potential.

Global organizations are applying concepts that change the interaction with their surroundings and are moving toward corporate citizenship; the degree and manner in which companies’ activities affect the environment, society and their employees will be major factors.

The best-prepared young people in Latin America will be increasingly concerned with the dimensions of social responsibility of the companies that offer them jobs. Concepts such as the quality of the work environment, business ethics, community relations and environment conservation will have greater significance.

In contrast, the best-prepared individuals in the region will be much less willing to commit themselves to lifelong careers offered by the organizations that work actively to select, recruit and keep them. The proactive attitudes, capacity for innovation and creativity valued in these highly skilled individuals will generally render them unwilling to accept the kind of lifelong work relationships common in the past.
3 ‘Glocal’: Where Global and Local Cultures Meet

3.1 Economic and cultural globalization is advancing very rapidly and is here to stay: countries wishing to take advantage of the opportunities generated by this worldwide transformation will have to adapt, change, and assume the costs of that change.

Latin American ambivalence

3.2 Most Latin American countries have an ambivalent attitude toward globalization that limits their capacity to take full advantage of the opportunities created and to consolidate regional cultural values. As a result, it will be difficult for the region to hold the interest of global decision-makers.

The values of the globalized world and the demands for productivity still conflict in many ways with the way countries perceive their own cultures, when the recovery of Latin American values is sometimes reduced to merely defending folklore.

There is also a generalized notion that Latin America is unable to compete under equal circumstances, leading to a “negation” of the globalization process.

As a result of geopolitical changes created by the fall of the socialist bloc and the eruption of China and India as the two megastar countries of new world growth, Latin America is no longer the focus of global investors’ attention. The region therefore needs to act in an aggressive manner to attract production capital and be proactive in seeking associations with the most developed countries and multinational companies. The region will find it hard to be a passive target of investments as a center of strategic interest, and for that reason Latin American society needs to overcome its nationalist discourse and negation as soon as possible.

3.3 The ambivalent view that world change is intrusive often becomes a mentality of protection and subsidy that makes it impossible to perform the structural modifications required to take advantage of globalization.

Even though Latin American society accepts a large supply of globalized goods, services, products, and content, in many cases it still rejects the symbols representing the most developed countries and the multinational establishment.

Carrying out reforms to open up, normalize and formalize Latin American markets has been very complex, due to the sociopolitical and economic structures, as well as cultural and ideological rejection of globalization.

This reticence to modify labor and economic protection systems that wrest flexibility from the industrial reconversion required in the region will continue to weigh heavily on the minds of local and international investors.

3.4 The conditions necessary to take advantage of the opportunities offered by globalization require a more decisive and open multicultural integration, a subtle understanding of differences, and a greater commitment to social responsibility.

The need for multicultural integration and structural transformation

The challenges of globalization imply changing from a local work environment to one that transcends borders, a work environment that allows the integration of multinational executives and local companies.

There is an apparent cultural similarity between Latin America and other developed countries in the Western Hemisphere, and it is assumed that people can adapt to local cultures without having to make any modifications. This situation generates issues that are potentially harmful for the assimilation of companies in the region.

Foreign executives who are assigned on a temporary basis do not always understand local culture and tend to focus on concrete results during their tenure. This attitude does not necessarily create solid foundations for development.
Companies that become truly global are those whose cultures promote open and inclusive coexistence: teamwork, respect for diversity, tolerance, and sensitivity toward the local culture.

Companies established in the region need to face the challenge of gaining the goodwill of Latin American society by effectively practicing corporate social responsibility with concrete actions such as increased training, effective community relations, creation of competitive jobs, and an explicit and unequivocal commitment to ethics and human values.

Latin American society needs to be trained to face the change that this phenomenon implies. In particular, businesspeople, executives and public administrators must acquire a more ambitious way of thinking with regard to globalization, have world-class attitudes, be fearless and be proactive in the internationalization of their operations, while understanding the complexity of their global surroundings.

3.5 Local economies will have to transform themselves structurally in search of specializations offering them global competitiveness, without neglecting the maintenance and growth of their domestic markets.

Whatever the scope of their operations, all companies need to maintain the same operating standards including, among other aspects, the development of skills that are relevant to demand, dynamic and flexible operations, a bilingual labor force (that speaks Spanish and English), and the systemization of performance evaluation for ongoing improvement.

Even when the aim of a company is to produce for the international market, domestic markets will continue to be attractive and will be targets for further growth.

In this sense, the danger that products in the domestic market will become more expensive, due to a structural lack of supply, could lead to protectionist tendencies and rejection of globalization processes.

It is therefore important that local producers do not neglect the basic activities required to satisfy the domestic market.

A company’s possibility of success will not be a question of origin (international vs. local) or volume (large, medium or small), but rather of its focus on the basic need to be competitive.

The role of small and medium businesses

3.6 Small and medium businesses in Latin America will need to become more international and achieve modern forms of competitive integration.

Small and medium businesses are the suppliers of goods and services for the larger and more emblematic firms in the region and create the vast majority of jobs. On average, small and medium businesses represent 95% of all the companies in Latin America, and generate around 70% of the jobs and 50% of the region’s GDP.

Thanks to their vocation of servicing large companies as well as an increase in global competition in local markets, Latin American small and medium businesses will need to become more international in their outlook. They will be unsuccessful in this process unless they first manage to empower the transformation of their people and internal culture.

Training employees, including in basic disciplines such as Spanish, English and mathematics (to overcome deficiencies of educational systems) will be critical, as will the transformation of their internal culture to make use of the imagination, initiative and flexibility that be promoted in small organizational structures. There will also be an emphasis on reducing hierarchical distances.

In light of this need for transformation, in the next decade the cultural inertia of traditional firms will continue to weigh heavily. The challenge of technological development and cultural change will become more intense, and it is possible that firms will wait for a generational change, with the professionalization of senior management, as the breakpoint for competitive transformation.

Associations between companies and the integration of alliances in the value chain, other strategic alliances, mergers and even forms of competitive cooperation will be models used more and more frequently by small and medium businesses seeking integration to increase their opportunities in the world market.
3.7 The change of generations will offer an opportunity to assimilate global changes, but will also represent a great challenge regarding the employment of the older generations, and for education to narrow the gaps in digital and international integration.

The new generation brings new opportunity

The speedy integration of young people into the workforce in the next decade will enable companies to have a more dynamic labor force that is skilled in the use of new technologies, much more flexible and exposed from infancy to content offered by new media that bring them closer to the values of world culture. Most of the 10 million Latin Americans who will reach the age of 18 in 2015 will use the Internet as a way to relate to the world and will assume that it has always existed.

Meanwhile, the 110 million Latin Americans between the ages of 45 and 65 in 2015 will face the increasing need for retraining and updating their knowledge and skills. They will find themselves in a technological culture that is not as natural for them as it is for younger workers.

The challenge for people, companies and governments lies in their capacity to merge young people with older generations into a productive force that combines the decision-making experience of mature workers with the drive of more technologically developed and dynamic younger workers.
4 Labor Movements and the Workforce

4.1 Latin American migration will continue to gain importance in the coming decade; it will be motivated by a number of different factors and will be subject to constant change.

Structural trends in human migration

The reasons why people migrate go beyond the search for new employment opportunities and a higher standard of living, given the income disparity among the various regions; attitudes also influence their decisions to move to new lands. Some segments of the population have a more adventurous spirit, while others seek growth, a better education, increased opportunities and personal advancement.

These attitudes exist among young people at every socioeconomic and academic level, and every country of origin.

Better skilled workers seek multicultural experiences, in order to make use of their knowledge and talents.

Recent economic crises in a number of countries in the region have accelerated the talent drain to other, more stable and more highly developed countries. These workers tend not to have the mobility barriers that affect the less qualified labor force.

Immigrant workers will continue to form specific labor markets, even creating a major potential for marketing "nostalgia" products.

The economic and psychological costs associated with migration will continue to decrease. The abundance of young people in Latin America, compared to the relative aging of the populations in the most developed countries, will create a demand for manual labor as well as people with specific skills, such as elementary school teachers capable of understanding English who teach their classes in Spanish, or bilingual health care technicians to care for children and senior citizens.

The wage gaps between Latin American and developed countries, and even between countries in the region, will continue to drive worker mobility.

Mass migration from Latin America to wealthy countries

Migration to the United States, particularly from the countries spanning from Mexico to Panama, will continue to be a common occurrence and will continue to transform Latin American societies as well as the United States.

On a quantitative level, Mexico and Central America generate over 70% of all Latin American migration, predominantly to the United States.

Although migration may register a slowdown in relative terms in the coming decade, the flow of migration will remain important in absolute terms: by 2015, another 4 to 5 million Latin Americans may have joined the 13 million already established in the United States.

At the same time, the United States requires more young workers willing to perform less attractive jobs, principally personal services with little value added, as well as lower-skilled workers such as farm workers.

Those who migrate to the United States will continue to have greater relative capacities for economical productivity. They will generally be younger, better

A series of structural factors will continue to encourage migration between countries:

1) Modern communications and transportation, with the resulting reduction in travel costs;
2) The growing importance of social and family networks extending to different countries;
3) Noticeable differences in demographic pyramids; and
4) Income disparities at all levels.
educated and more experienced than the average inhabitant of their countries of origin.

In the case of Mexican immigrants, for example, 97% have some level of education, and of those, 65% have completed at least the secondary level. There are more Mexican immigrants with postgraduate studies than people with no education at all.

In the past, migrants were almost exclusively healthy young men who left their wives behind to take care of the home. In the coming decade, there will be an equal number of women traveling with their husbands, which will result in abandoned agricultural land, ghost towns and a relative reduction in the flow of remittances sent by new migrants.

With a population growth rate of around 3% and the levels of immigration expected during the next 10 years, the Hispanic population in the United States could reach 60 million by 2015.

Over 17% of the total U.S. population will be of Hispanic origin, a figure equivalent to almost 10% of the total population of Latin America.

Thus, the Latin American population in the United States will become increasingly significant, in terms of its percentage of the total population as well as its potential political influence. As a result, greater barriers to immigration, in particular illegal migration, will be enacted.

The need to control and secure U.S. borders and the importance of protecting U.S. territorial integrity will lead to a progression of specific measures aimed at balancing the need for an immigrant labor force with an increase in protectionist policies. These measures will include some kind of amnesty for undocumented immigrants currently living in the United States and even the creation of a tolerance zone, but there may also be political concessions granted to the most hard-line anti-immigrant forces. There will also be more active efforts encouraging Latin Americans to learn English and adopt the symbols of the United States.

One of the most noteworthy expressions of international migration is the flow of remittances. These resources have increased and have benefited a growing number of families and individuals. The magnitude of this monetary flow is a very important source of foreign exchange and support for millions of households in the immigrants’ countries of origin.

Latin America currently receives remittances equivalent to 2% of the region’s GDP. There are enormous differences in the relative impact these transfers have on local economies: for Mexico, they account for 2.7% of the country’s GDP; for Central America, almost 11%; and for South America just 0.9%. It is estimated that between $400 and $450 billion will be received in remittances in the next 10 years, an amount that represents a significant boost for the regional economy.

The media and the entertainment industry throughout Latin America can also benefit from immigration. The Spanish-speaking market in North America, with increasing financial and educational levels, is demanding more sophisticated services and content.
Talent migration as a component of the globalization process

The migration of skilled talent within Latin America, and between it and other regions, will change the way business is conducted in coming decades.

There are four types of talent migration: brain drain, brain circulation, brain recovery and brain exchange. Each of these will be accentuated in the next few years, creating challenges and opportunities for regional development.

<table>
<thead>
<tr>
<th>Talent Migration Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brain drain</td>
<td>Highly skilled workers leave their countries of origin due to a structural lack of opportunities for development in their areas of specialization, or because of economic and/or political crises. These migrants do not return to their countries of origin.</td>
</tr>
<tr>
<td>Brain circulation</td>
<td>Skilled personnel live and work in foreign countries for a certain period of time, and then return to their countries of origin or move to third countries.</td>
</tr>
<tr>
<td>Brain recovery</td>
<td>Skilled workers return to their countries of origin for economic reasons: they find that they can make better long-term use of their money in their countries of origin, due to business opportunities.</td>
</tr>
<tr>
<td>Brain exchange</td>
<td>Workers seek professional development without going to another country, thanks to the generalization of information and communications technologies, particularly in social segments with higher educational levels.</td>
</tr>
</tbody>
</table>

Perhaps because of deficiencies in Latin American educational systems, resulting in a brain drain toward the most developed parts of the world, Latin America has a scarcity of specialized talent in certain fields that will probably worsen in the next decade.

The most developed and technologically advanced countries in the world will have a strong demand for highly skilled personnel and will offer very favorable conditions in order to attract them. In the short and medium terms, there are no signs that Latin America will develop conditions capable of offering this type of talent the kind of jobs that will meet their expectations. Therefore, for strategic reasons, countries in the region should focus on building up resources for production activities, thereby boosting the potential for generating wealth intrinsic to the highly technological activities in which these profiles tend to be concentrated.

Brain circulation offers local business owners the ability to meet their immediate employment needs with limited-term contracts.

Within this category, there are also people who migrate as part of transnational firms’ strategy for multicultural skill development. This kind of migration favors the formation of a budding pool of specialized Latin American talent.

Given cultural and language affinities as well as the need for more technologically advanced operations, in the coming decade many companies will take advantage of the opportunity to employ talent from various parts of the region.

Skilled workers who return to their countries of origin (brain recovery) generate investment and employment, and train a competent labor force. They often take advantage of the capital obtained and the abilities they developed in the countries to which they migrated.

Latin America has not traditionally enjoyed the benefits of brain recovery, but thanks to its current economic and political stability, as well as a certain critical mass of economic development achieved by migrants in recent years, it is anticipated that a number of talented workers will return to their countries of origin in the next few years.

Some data regarding Hispanic firms in the United States: There are two million companies generating revenues equivalent to 11% of Latin America’s GDP, growing at a rate of about 6% a year, almost double the population growth rate. If we view these trends within the context of globalization, we can anticipate a strong flow of resources, know-how and talent toward Latin America.
Finally, brain exchange may make it easier for countries to retain talent, since this category involves a non-physical migration of skills that will increase in coming years. This practice is common among companies seeking to increase the productivity of their operations through intelligent localization and with a more flexible and more open mentality that allows greater acceptance of new ways to work.

There will be a greater number of people working from home (telecommuting), which will help resolve certain problems regarding the scarcity of talent.

**Figure 4.1. The 10 skills that are scarcest in Mexico.**

| 1. | Sales representatives |
| 2. | Technicians (production, operations, engineering, and maintenance) |
| 3. | Manual laborers |
| 4. | Assembly line operators |
| 5. | Administrative and medical assistants |
| 6. | Engineers |
| 7. | Customer sales/service representatives |
| 8. | Maintenance managers |
| 9. | Sales managers |
| 10. | Receptionists |

Source: Manpower, Paradoja de la Escasez de Talento en el Mundo (World Talent Shortage Paradox), Mexico, 2006.

**Migration of baby boomers**

Demographic trends, climatic conditions, and economic advantages have prompted migration from developed countries to Latin America, and this tendency could increase significantly in the next 10 years.

The number of foreign retirees living in the region is already significant, and the figure will grow substantially with the retirement of baby boomers, meaning that demand for personal services, health care, tourism, financial services, recreation, commerce and real estate will strongly increase.

It is estimated that in 2005 there were almost one million U.S. citizens living in Mexico, and hundreds of thousands more in Central and South America.

Over 30 million people in the United States will retire starting next year and will contemplate a move to other places; a similar trend is apparent in other developed countries. Latin America will therefore be able to gain economic benefits and job creation in related fields.

In Costa Rica, for example, retirees represent a significant part of the $1.4 billion spent by U.S. citizens each year. When expenditures on health care, construction, goods and other services are included, the figure could rise to around $4 billion, or almost 25% of the country’s GDP.

The wave of pensioners also generates synergies. The first retirees set up small hotels near the beach and travel agencies that, in turn, brought more tourists and more retirees. Continuation of the trend is simple.

Several countries, especially in Central America, are analyzing the potential benefits associated with this trend, and are working to attract seniors, particularly those from North America.

Allowing foreign retirees to participate in national retirement plans is also a possibility. Costa Rica allows foreign citizens to participate in its system, offering 100% hospital and prescription coverage for $37 a month.
Panama, Honduras, Belize and Nicaragua are also interested in attracting retirees and have created tax exemptions for those wishing to buy or build housing in the country.

4.2. In order to take advantage of the opportunities offered by globalization, the most advanced organizations in the world are changing the equilibrium of job creation in the world.

### Structural trends of the movement of employment sources

In order to make market access more efficient and improve the productivity of their processes, companies strive to locate part of their operations, or even entire business processes, in an intelligent manner. These decisions are made beyond geographical or geopolitical barriers and consist of two modalities:

| Outsourceing | A company’s non-strategic functions are handled by a third party, thus creating a high level of effectiveness in areas where it cannot afford to invest its own time, which can thus be spent on critical aspects that enable the organization to be competitive. |
| Offshoring | A company’s operations are relocated to another place or country with the explicit intention of reducing costs and increasing productivity. By its nature, this process involves long-term decisions. |

### Changes in factors that affect decisions

As the globalization process continues, factors affecting decisions regarding the relocation of operations or processes will be more numerous and more complex.

In the past, decisions were made based primarily on economic variables, but in the coming decade, strategic reasons and trust in the legal security to protect investments will weigh much more heavily.

Increasingly strategic reasons, linked with the degree of regional presence or making use of specific normative situations, are relevant in the evaluation of relocating global companies’ operations.

Lower labor costs will not be the only critical factor in these decisions; just as important will be the availability of a qualified labor force, with skills and knowledge pertinent to the processes required.

Logistical advantages will play a vital role in outsourcing and offshoring decisions, because of increased attention paid by companies to opportunity costs and the total costs required to reach their markets.

Sharing or partially transferring the risk of certain operational processes or segments could be another decisive motive when legal, social, labor and environmental responsibilities start to become a critical variable in a company’s operations.

### Competition on a global scale (hypercompetition)

Competition on a global scale (hypercompetition) implies a lower tolerance for error and demands for more precise delivery times, creating demand for higher levels of specialization, sophistication and flexibility on the part of suppliers.

### Attractive destinations and promoting investment

On a global level, the most attractive destinations for offshoring and outsourcing are considered to be China and India which, due to their size as well as competitive focus, will continue to attract attention worldwide. The challenge for Latin America is therefore global competition by means of Direct Foreign Investment (DFI), to make companies more proactive in the promotion of investment and the generation of niche advantages, as well as the region’s visibility vis-à-vis the two aforementioned Asian giants.

Brazil, Mexico, Argentina, Costa Rica and Panama are attractive destinations for a number of different reasons, such as relative costs, experience and workforce training, governmental promotion and, in some cases, their proximity to the United States, as well as the common language spoken in the region.

Software services, call centers and outsourcing of accounting and other administrative services, as well as technical support and customer service, are activities...
that will continue to grow in Latin American countries that promote these business niches.

Thanks to their geographical location, Latin American countries have advantages compared to the rest of the world in the promotion of investments coming from or going to the United States and Canada. Even countries that are not in close geographical proximity to the United States share common time zones, which allows supervision of operations in real time and/or the reduction of logistical costs.

The Spanish-speaking population of the United States consists of around 40 million people, which offers Latin American countries a potential advantage in communication.

Furthermore, most countries in the region have relative political and social stability as well as a greater cultural and religious affinity with North America than other parts of the world have. This facilitates interaction and trust between the two regions.

Practices of Latin American companies

From the viewpoint of Latin American firms, outsourcing and offshoring practices which take advantage of globalization are still insufficient, meaning that one of the great challenges for companies will be to understand and master these practices as tools with which to increase productivity.

Only a few exemplary companies have understood the inherent advantages of regional placement for understanding the internationalization process, due to affinities related to culture, language and market size.

Latin America will have to shift the paradigm from being a source of cheap labor to being suppliers of outsourcing and offshoring services with greater value added. However, Latin America must also actively engage in the intelligent relocation of their operations and processes, and focus on innovation, industrial transformation and product renewal.

Relevant Data:

- Mexico and Central America generate more than 70% of all Latin American migration.
- By 2015, four to five million Latin Americans will have joined the 13 million already established in the United States.
- 97% of Mexican migrants have some level of education; 65% have completed the secondary level and the number of immigrants with postgraduate studies is higher than those without any education at all.
- The Hispanic population in the United States could reach 60 million by 2015, equivalent to 17% of the North American population and almost 10% of Latin America's population.
- Remittances from abroad represent 2% of the GDP in Latin America, 11% in Central America, 2.7% in Mexico and 0.9% in South America.
- In the next 10 years, Latin America will receive between $400 and $450 billion in remittances.
- Hispanics own two million companies in the United States that generate the equivalent of 11% of Latin America's GDP, and they are growing at an average annual rate of 6%.
- In Costa Rica, spending by senior citizens and retirees from developed countries represents almost 25% of the country's GDP.
- Over 30 million baby boomers will retire in the next 10 years.
5. Education, Skills and Learning

In addition to increasing access, quality and relevance must be improved. Three-quarters of the world’s illiterate population lives in Africa and Asia. The rest is in Latin America, with large concentrations in certain parts of the region: while only 1% of Uruguay’s inhabitants cannot read or write, in Nicaragua this figure is 29%.

5.1 In 2015, 7% of Latin America’s population will still be illiterate, although other indices will be comparable to those of developed countries.

Figure 5.1. Latin America’s educational forecast.

In 1980, the illiterate rate was 30%. In 2015, the rate will be 7%.

*literacy: Population aged 15 years and above that cannot read or write.

Latin America has a school life expectancy of 9 years or more, and the net registration rate for elementary schools is 70%, similar to the developed countries’ rates of over 70%. Nevertheless, educational quality and direction are still lacking what it takes to make Latin America more competitive.

Figure 5.2. Average number of years of school attendance.⁹

5.2 Inequality may continue to be a factor in the vicious circle of ignorance and poverty.

Latin America must urgently promote equal access to education. Currently, access is often linked to income levels and proximity to cities. Moreover, in some rural communities, gender discrimination still blocks girls’ access to schools.

A Latin American adult from the richest 10% of the population averages 7 years more schooling than an adult from the poorest 30%. This inequality passes from generation to generation: if the parents never went to school, the children probably will not either.

Other important factors for learning are related to health and nutrition. Latin America continues to have higher poverty levels than developed countries.


Figure 5.4. Countries by percentage of poor population.\(^\text{10}\)

There is a danger of perpetuating systems of inequality and alienation that limit the full development of Latin American markets and societies.

As a whole, this vicious circle poses the region’s most significant social challenge, especially considering the pressing need for a highly productive workforce at a time when it must take advantage of the demographic dividend.

5.3 Educational systems must be restructured to meet future demands, and their relevance must be enhanced.

Latin American educational institutions must have the capacity to meet the large demand of young people wishing to study, and their programs must be linked to the needs of companies.

The traditional paradigm of basic education in Latin America assumes that the only formal instruction individuals will receive in their lives is elementary education, which must therefore offer a wide range of knowledge in all fields.

This paradigm will be increasingly questioned, given the more realistic, relevant and useful need to improve the teaching of logical and concrete symbolic elements in math and science, as well as basic Spanish language skills and English, which has become the universal language.

In the OECD study “PISA: Program for International Student Assessment,” regarding Spanish, math and science education, the most developed countries (Europe and Asia) obtained the highest scores, while Latin America had the lowest.

**Figure 5.5. Average scores per student in reading, math and science, 2000 evaluation.**

<table>
<thead>
<tr>
<th>Country</th>
<th>Math assessment</th>
<th>Reading assessment</th>
<th>Science assessment</th>
<th>Total Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>JAPAN</td>
<td>522</td>
<td>557</td>
<td>550</td>
<td>1,629</td>
</tr>
<tr>
<td>HONG KONG</td>
<td>525</td>
<td>560</td>
<td>541</td>
<td>1,626</td>
</tr>
<tr>
<td>KOREA</td>
<td>525</td>
<td>547</td>
<td>552</td>
<td>1,624</td>
</tr>
<tr>
<td>FINLAND</td>
<td>546</td>
<td>536</td>
<td>538</td>
<td>1,620</td>
</tr>
<tr>
<td>CANADA</td>
<td>534</td>
<td>533</td>
<td>529</td>
<td>1,596</td>
</tr>
<tr>
<td>AUSTRALIA</td>
<td>528</td>
<td>533</td>
<td>528</td>
<td>1,589</td>
</tr>
<tr>
<td>UNITED KINGDOM</td>
<td>523</td>
<td>529</td>
<td>532</td>
<td>1,584</td>
</tr>
<tr>
<td>FRANCE</td>
<td>505</td>
<td>517</td>
<td>500</td>
<td>1,522</td>
</tr>
<tr>
<td>UNITED STATES</td>
<td>504</td>
<td>493</td>
<td>499</td>
<td>1,496</td>
</tr>
<tr>
<td>ISRAEL</td>
<td>452</td>
<td>433</td>
<td>434</td>
<td>1,319</td>
</tr>
<tr>
<td>MEXICO</td>
<td>422</td>
<td>387</td>
<td>422</td>
<td>1,231</td>
</tr>
<tr>
<td>CHILE</td>
<td>410</td>
<td>384</td>
<td>415</td>
<td>1,209</td>
</tr>
<tr>
<td>ARGENTINA</td>
<td>418</td>
<td>388</td>
<td>396</td>
<td>1,202</td>
</tr>
<tr>
<td>INDONESIA</td>
<td>371</td>
<td>367</td>
<td>393</td>
<td>1,131</td>
</tr>
<tr>
<td>BRAZIL</td>
<td>396</td>
<td>334</td>
<td>375</td>
<td>1,105</td>
</tr>
<tr>
<td>PERU</td>
<td>327</td>
<td>292</td>
<td>333</td>
<td>952</td>
</tr>
</tbody>
</table>


11 Scores are divided by level: Level 1 equals 335-407 points and Level 5 equals 625 points or higher. Scores below 335 indicate a lack of basic skills as measured by the PISA assessment.
More important than the goals of imparting information and integrating young people into formal Latin American cultures and histories is the need to train a productive workforce in a globalized world. To accomplish this, educational institutions must focus on teaching students to think, promoting sustainable development and achieving high skill levels.

This focus will foster independent learning and responsibility for continuing development and skills training. “Learning to learn” will be the key to satisfying corporate demands in this hyper-competitive world, as well as fulfilling individual needs and aspirations.

Business-academic connection:

A goal for all

5.4 *Secondary and technical education will provide the greatest opportunities for young people entering the workforce.*

Although Latin American higher education’s installed capacity is large and opportunities for high-quality training are constantly increasing, there are few educational facilities available in each country and they are often quite expensive.

In order to close the gap between the large number of young people interested in studying and the system’s capacity to offer them high-quality vocational training, secondary and technical education must be strengthened. This could be done at a much lower cost than at the university level, and would afford greater possibilities for achieving training levels with acceptable quality.

But this kind of education can hardly flourish amid Latin America’s social and cultural inertia and, as a result, the region could miss a clear opportunity for growth and fail to meet the labor market’s needs. The Latin American social environment will continue to steer young people toward university majors that do not guarantee a future of prosperous work. Academic institutions will continue responding to the temptation to restrict access to an education in danger of becoming less and less responsive to the demands at a world manufacturing level, in exchange for short-term concessions.

The region must create an educational system that offers many options, while concentrating on meeting the real needs for personal development as well as sustainable community development.

To meet this challenge, companies, governments and academic institutions must work together to transform the Latin American educational system.
5.5 Efforts made by companies and public and private universities to work together, raise their level of competence, and emphasize educational quality and relevance will be critical.

Latin America is graduating very few professionals in the fields most sought-after worldwide. The region will need to make a greater commitment to offering technical studies covering research, development and innovation. Until the region’s basic education system begins to put a larger emphasis on technical and scientific fields, the tendency to facilitate administrative positions and social sciences cannot be overcome. Furthermore, higher education’s specialized and scientific curricula are not linked to manufacturing needs and systems have not been updated, making them less attractive to young people.

Figure 5.6. University majors with the most students, 2003.\(^\text{12}\)

![Figure 5.6: University majors with the most students, 2003.](image)

In coming years, the corporate role in education, development and applied technology will be vital. Universities will need to be alert to corporate demands, in order to understand which majors are essential and what issues are critical in each industry.

Latin America should promote coordinated development programs, in which strategic alliances and joint projects would provide win-win situations.

\(^{12}\) Source: Asociación Nacional de Universidades e Instituciones de Educación Superior (ANUIES). Anuarios Estadísticos de Licenciatura y Posgrado (Statistical Yearbook of Bachelor and Post-Graduate Studies), Mexico, 2004.
Developing skills, spreading new knowledge and the role of the individual

5.6 Educational systems must be changed.

One of the most serious structural problems is the deficient preparation of many Latin American educators. This is the basic reason why educational systems continue to be extremely traditional and often obsolete.

When students lack the most basic tools, they use study methods that are inadequate for the development of individual thought and creativity.

In general, Latin American young people are not prepared to internalize what they learn and, as a result, they cannot develop the conceptual and practical bridges for applying knowledge. In order to do that, they would need to take responsibility for absorbing new information, combining it with previously acquired knowledge and then formulating ideas and action plans.

In order to change Latin America’s educational paradigm, the quality of education must be improved with an eye on the future and a focus on the realities of each country and its labor market.

Relevant Data:

- In 2015, 7% of Latin America’s population will still be illiterate; the two extremes are Uruguay (1%) and Nicaragua (29%).
- Currently the net registration rate for elementary schools is 70% and school life expectancy is 9 or more years.
- The richest 10% of the population averages 7 more years of schooling than the poorest 30%. Furthermore, this pattern is passed from generation to generation.
- Given the large number of Latin Americans who live in poverty, health and nutrition negatively impact educational success.
- While majors such as law, business administration and accounting attract the largest number of students, companies need workers skilled in negotiation and persuasion (sales), engineering and technical areas.
- The skills most needed in the future are logical thinking and independent learning, which are fostered through the study of math and mastery of language.
6. Productivity in the Knowledge Economy

The context of global change

6.1 Countries, companies and people are focused on increased production, intangible value and transforming the content of their work through technology, which implies a reduced need for labor in all production processes.

In a setting of intangible assets for the production of goods and services with high value added, work will be more highly skilled, more complex and more directed toward information processing and the creation of knowledge, without the restrictions of space and time imposed by the industrial production of physical goods. This will mean fewer work hours than at present, and lead to a system of labor compensation based on skills linked to results, rather than the fulfillment of tasks or hours worked.

Eight out of ten new hires are currently “knowledge workers” and half of the wealth produced by advanced societies comes from intangible assets. This trend will be consolidated during the next decade, causing a structural transformation of the world’s economies.

The fundamental prerequisite for competing in the knowledge economy is quality education and training. Thus, in the next few years, Latin America may be able to provide the knowledge society with enough young and healthy workers, but it could be at a disadvantage compared to other regions because of deficiencies in its educational system.

Of the four kinds of capital on which the world is focusing attention in order to increase productivity –

human capital, intellectual capital, social capital and structural capital – Latin America has attractive human capital and, in the next decade, the demographic dividend will accentuate its importance.

However, there will be an urgent need to generate intellectual capital and the rights stemming from them; to create social capital based on trust among individuals, and between individuals and organizations; and to develop structural capital, consisting of the rules of conduct and institutions that give form to the processes of productive interaction.

Productivity as a value

6.2 In Latin America, productivity is a value that is sometimes misunderstood: in general, the concept of making or producing more is often confused with the concept of generating greater value.

Confusion in the focus on productivity often creates structural problems related to competition that can lead to frustration, such as work hours that are longer but not necessarily more productive than in other regions. In the United States, Japan and Europe, the average worker produces goods and services worth between 40,000 and 50,000 USD per year in fewer work hours than Latin America, whose production level is about 10,500 USD annually, about the same as in 1980\(^1\).

\(^1\) Ruesga, Santos and Fuji, Gerardo. “El comportamiento del mercado de trabajo en América Latina en el contexto de la globalización económica” (Latin American Labor Market Response in the Context of Globalization), as published in Balance preliminar de las economías de América Latina y el Caribe (Preliminary Overview of the Economies of Latin America and the Caribbean), Economic Commission for Latin America and the Caribbean (ECLAC), 2006.
Given the worldwide economic transformation, in the next few years the region’s business leaders and politicians need to change their way of thinking. This process may be aided by the arrival of the younger generation, access to globalized information, and better education.

However, what we see at the present time is a focus on controlling resources, based on inflexible hierarchical structures and a lack of long-range vision. This is due in part to macroeconomic crises that restrict long-range planning.

The relative lack of clarity about productivity as a value is reflected in the “zero productivity” of a wide variety of occupations tolerated by the companies, governments and societies of many countries in the region. Combined with the so-called informal economy, these occupations allow many people to earn incomes without generating value.

Latin America’s historic opportunity and the cost of reconversion

6.3 In coming years, Latin America will possess a young and numerous workforce, combined with a worldwide rise in the price of its commodities and products. This poses a unique and historic growth opportunity: a demographic dividend and an abundance of economic resources.

The increase in prices of Latin America's commodities and products is, to a large extent, the result of greater demand on the part of China and India. This demand will continue to grow in the next 10 years and will be increasingly integrated with the global productivity tendencies in the competitive markets of modernization and knowledge application.

The greatest danger threatening Latin America in the coming decade is the possible utilization of excess resources to subsidize unproductive sectors, rather than investing in infrastructure, education and technology.

6.4 Productivity reconversion in the region will be painful: companies, the state and individuals must invest in order to offset the cost of this change.

One of Latin America's priorities should be to attract productivity capital that creates jobs that make good use of the demographic dividend and a positive cycle of investment, work and consumption.

However, at the present, the region has not reached the critical mass that attracts the attention of decision-makers throughout the world. Among the reasons for this are the geopolitical changes of recent decades and the appearance of new players in the world economy that are becoming powerful, if only because of their demographic size.
Within this spectrum of changes and challenges, not companies, countries nor individuals have reacted with sufficient speed when it comes to paying the price of redirecting their economies to the new global situation.

Latin America must reverse these tendencies with more aggressive and proactive behavior. This consists of creating a culture of commitment to productivity, generating conditions for growth that are favorable to economies of scale, and focusing on achieving efficient indicators for its processes and companies, including:

- A 3% annual reduction in costs
- 20-30% of income generated by new products (less than two years old)

All the social, political and economic actors must abandon their current comfort zones in order to work toward regional integration, with the goal of achieving a critical mass for global trade and production that encourages rapid progress and improvement.

Conditions for redirecting production activities toward knowledge-based activities

6.5 The mass media, government, companies and other groups and social actors in Latin America continue to be more concerned with physical investments than with research and development (R&D) and knowledge.

Latin American society must change its system of economic values. In the knowledge-based economy, the focus will no longer be on the square footage of factories, the number of units produced or the number of jobs created.

Intellectual property, patents, knowledge, research projects and publications will constitute the center of gravity around which value, wealth, and business and personal opportunities will be generated.

6.6 In order to establish highly productive and profitable economies, Latin America must focus on knowledge creation.

This may limit the region in coming years if it is not prepared to incorporate and value new trends and establish faster and more intelligent methods of assimilation.

Another challenge will be to create more value through a more highly skilled workforce. To that end, Latin America must develop indicators that measure the impact of each person’s labor.

Through that process, it would be possible to eliminate jobs whose productivity is nearly zero. All of this is tied to the challenge of creating and retaining talent in the region. It is also indispensable for Latin American countries to promote the growth of intellectual capital; throughout the world, the number of patent applications grew 20% annually from 1990 to 2004.

A clear example of the fact that Latin America is far from a true knowledge economy is that most of the region’s largest companies are producers of hydrocarbons, cement and agro-industrial products.

Figure 6.2 Largest Latin American Companies, 2004.

<table>
<thead>
<tr>
<th>Largest Latin American companies, 2004</th>
<th>Country</th>
<th>Total sales (Billion $)</th>
<th>% GDP Latin America</th>
<th>Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petróleos Mexicanos</td>
<td>Mexico</td>
<td>55.7</td>
<td>2.76%</td>
<td>Hydrocarbon</td>
</tr>
<tr>
<td>PDVSA</td>
<td>Venezuela</td>
<td>46.0</td>
<td>2.28%</td>
<td>Hydrocarbon</td>
</tr>
<tr>
<td>PEMEX Explotación y Producción</td>
<td>Mexico</td>
<td>38.0</td>
<td>1.88%</td>
<td>Hydrocarbon</td>
</tr>
<tr>
<td>Petrobras</td>
<td>Brasil</td>
<td>33.1</td>
<td>1.64%</td>
<td>Hydrocarbon</td>
</tr>
<tr>
<td>PEMEX Refinación</td>
<td>Mexico</td>
<td>27.4</td>
<td>1.36%</td>
<td>Hydrocarbon</td>
</tr>
<tr>
<td>PMI Comercio Internacional</td>
<td>Mexico</td>
<td>18.6</td>
<td>0.92%</td>
<td>Trading</td>
</tr>
<tr>
<td>PEMEX Gas y Petroquímica</td>
<td>Mexico</td>
<td>12.7</td>
<td>0.63%</td>
<td>Petrochemical</td>
</tr>
<tr>
<td>Comisión Federal de Electricidad</td>
<td>Mexico</td>
<td>12.4</td>
<td>0.62%</td>
<td>Electricity</td>
</tr>
<tr>
<td>General Motors</td>
<td>Mexico</td>
<td>11.1</td>
<td>0.55%</td>
<td>Automotive</td>
</tr>
<tr>
<td>Wal-Mart</td>
<td>Mexico</td>
<td>10.7</td>
<td>0.53%</td>
<td>Commerce</td>
</tr>
</tbody>
</table>

Source: América Economía magazine. Las mayores empresas de América Latina por propiedad (Largest Latin American Companies), July 2004.
6.7 Productivity requires innovative management with a holistic vision; a culture of constant improvement; being objective-orientated rather than task-oriented; promotion of R&D; and creativity in the face of the standardization of operations.

If the region is to join the knowledge economy revolution, its business and political leaders must make some fundamental commitments. First of all, each state must institute strict regulations protecting intellectual property. Second, the region must promote cooperation agreements with developed countries for the establishment of R&D centers, which would be very difficult and costly to create without preexisting know-how. Finally, preference must be given to high-tech and high-productivity jobs.

In order to create an attractive environment for the establishment of world-class R&D centers in Latin America, the region must guarantee respect for copyrights, patents and trademarks; this is indispensable in any market.

At the present time, Latin American society does not show a total respect for intellectual property, and this in turn demonstrates that the region still does not value the process of producing intangible assets and generating knowledge.

One symptom of this is that, according to the yearly study of software piracy published in 2004 by the BSA, piracy of all types of products, even books and software, is rampant throughout the region. This hinders competitiveness, the focus on productivity, and the creation of knowledge and intangible assets. It has been estimated that losses due to piracy throughout Latin America totaled 1.273 million USD in 2003.

6.8 The questions the region must ask itself are: What are our most productive sectors? What should we produce? With what value added?

The radical questions that often go unasked in Latin America also imply a change of focus. Instead of looking at what is currently produced, the region’s economic and social protagonists need to know what the consumer wants, in order to immediately produce to meet that demand and secure an advantageous position in that market.

The idea of putting the consumer at the center of production almost certainly implies sacrificing production activities and/or links that are not competitive. But consistency and assertiveness in the analysis and execution of that concept generates significant and sustainable value.

In order to bring about the change of direction demanded by global consumers, these trends must first be identified and then communicated throughout the region.

Producers, schools, governments and individuals must all be involved in this process, to accelerate changes in local economies’ structures and activities, and to minimize the costs of industrial and economic reconversion.

Not all sectors will be sufficiently productive and sustainable in all countries, and not all sectors in which any given society has comparative advantages will completely match individual expectations. For that reason, it will be fundamental for all Latin American social groups to study, discuss, and understand the process and its implications.

Technical or highly modernized sectors, with high value added, may be the most desirable, but it is unclear how much they can develop competitively under the region’s current conditions.
Sectors such as tourism offer a very significant opportunity as a growing international source of employment, in which women play a major role; but they also offer fewer managerial positions. At the other end of the scale, telecommunications continues to be one of the most dynamic and innovative sectors, but it generates comparatively few jobs.

Agriculture will remain one of the region’s most important sectors, despite the trend of migration to the cities, and it will need an urgent generational change, with the integration of new technologies and farmers who are better trained. Meanwhile commerce, which currently employs a large portion of the Latin American population, will become more productive and will reduce employment through the use of technologies for monitoring, logistics and remote transactions. Within the next 10 years, half of this sector’s jobs could disappear from the region.

Health care and other service sectors represent a historic opportunity for demographic trends in the developed countries, but Latin America does not yet have the potential to offer these services on a large scale, given the lack of adequate education.

In general, there is a need in all economic activities to direct the economy toward consumer demand. Technological changes tied to the consolidation of global transactions, at an accelerated and constant rate, will force companies, individuals and countries to improve the efficiency of their production, and in the process change the content, meaning and format of the work carried out today.

Relevant Data:

- 8 out of 10 new jobs are for “knowledge workers.”
- Half of the developed countries’ wealth is derived from intangible assets.
- In developed countries, each worker produces goods and services worth between 40,000 and 50,000 USD per year; each Latin American worker produces about 10,500 USD worth annually, about the same as in 1980.
- From 1990 to 2004, the number of patent applications around the world grew 20% annually, with a focus in “first world” countries on the development of intellectual capital.
- Meanwhile, most of Latin America’s largest companies are producers of oil, cement and agro-industrial products.

The challenge is to spark interest in the creation of knowledge and intangible assets, in the presence of a high piracy rate.
7. Technology’s Impact

Work Technology

7.1 Having a system of codes that facilitates the flow of information has been a determinant factor for centuries and has differentiated developed nations from underdeveloped ones. Today’s binary code, which has made possible modern information and communications technologies (the Internet, digital television, cell phones and informatics, among others), was at one time understood only by a few countries and companies (Finland, Singapore and Taiwan) that are now the leaders in these fields.

“Digitally illiterate” countries – those that have not learned how to handle this new language – have not increased their wealth, despite increases in the production of goods and services. Latin America, which has been slow to adopt emerging technologies, is still in its infancy in this regard: the region’s companies, people, and governments are just starting to learn how to use informatics to design processes, and to develop and access knowledge. When this learning is accelerated, it will unleash a major production potential.

The pace of integration and global competition will be based on the rapid generation and dispersion of technology, accompanied by the threat of deepening economic and social contrasts, given the fact that technological advances will not benefit everyone equally.

At present, only about 10% of Latin American families (those with the largest incomes) have Internet access, due to the high cost of computers and the lack of telecommunications infrastructure, which lowers the price of this service. According to forecasts, Internet access will practically quadruple in less than 10 years: by 2015, 38% of Latin American homes are expected to have this service, with a ratio of more than 20 personal computers per 100 inhabitants. This will facilitate access to knowledge, offer the region more international exposure, and reshape the ambitions of the next generation of young Latin Americans.

7.2 The generalized use of information and communications technologies and the arrival of a new generation of decision-makers will change the composition of work and the structure of productive cooperation.

Asynchronous teamwork, with fewer hours in the work place and greater flexibility, will not be an absolute constant in all Latin American workplaces, but it will be an increasingly common practice in the sectors related to the knowledge economy and among the top executives of public and private organizations throughout the region.

It will be common for work teams to include women in executive positions, and to retain people with special interests and needs, thus putting to the test the creativity of work teams and the capacity of organizations to maintain flexible rules.

Many of these changes will take place naturally with the arrival of younger workers; encouragingly, these trends will be easily established within a decade.

Development and technology adoption

7.3 A country’s technological advancement will be measured in terms of its investment in the integration and implementation of new technologies, whether they are developed through the country’s own research or imported from the world’s leaders.

Latin America has not accepted technological change with all its implications: political involvement, the efforts necessary to incorporate new technology, investment, and significant changes in business structures and job creation.

Countries in the region that do not establish policies supporting the application of new technologies (in terms of government stability, educational advancement and market strategies) will be left far behind, no matter what their poverty levels.
Figure 7.1. The countries with the greatest technological development.

<table>
<thead>
<tr>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finland</td>
</tr>
<tr>
<td>United States</td>
</tr>
<tr>
<td>Sweden</td>
</tr>
<tr>
<td>Japan</td>
</tr>
<tr>
<td>South Korea</td>
</tr>
<tr>
<td>Netherlands</td>
</tr>
<tr>
<td>United Kingdom</td>
</tr>
<tr>
<td>Germany</td>
</tr>
<tr>
<td>Ireland</td>
</tr>
<tr>
<td>Belgium</td>
</tr>
</tbody>
</table>


Other world regions have concentrated their research and development on specialized areas of applied technology.

Figure 7.2. Developed countries’ specialized areas of research and development.

<table>
<thead>
<tr>
<th>Region</th>
<th>Specialized Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>European countries (Germany, France and Italy)</strong></td>
<td>Chemistry, Physics</td>
</tr>
<tr>
<td><strong>Asian nations</strong></td>
<td>Chemistry, Physics, High tech</td>
</tr>
<tr>
<td><strong>Former soviet-block countries</strong></td>
<td>Chemistry, Physics, Engineering</td>
</tr>
<tr>
<td><strong>North America</strong></td>
<td>High-tech engineering*, Medical technology, Biomedicine, Geology</td>
</tr>
<tr>
<td><strong>Australia and Spain</strong></td>
<td>Social sciences, Humanities</td>
</tr>
</tbody>
</table>


An intelligent strategy for adopting new technology requires perceiving the social benefit of the innovation; strong ties between higher education and business; professional training in fields such as medical science and engineering that can carry out the creation and adoption of new technology; development planning; respect for innovation, through patent protection and research incentives; and promotion of training in research and development.

Transnational companies functioning in Latin America have laboratories in their home countries, and with the proper incentives they could move some of their innovation and development processes to the region, thereby benefiting from lower engineering costs and a quality workforce. However, this move has some disadvantages, such as a scarcity of trained personnel, uncertainty relating to legal protection for intellectual and industrial property, and a reticence on the part of scientists to delegate control of their most important research projects.

Few Latin American companies are committed to world-class investments in research and development. Furthermore, cuts in public spending have resulted in neglect of government-operated laboratories and research centers.

R&D makes up a smaller portion of the GDP in Latin America than, for example, in Asia. Moreover, the R&D investment gap between Latin America and the developed countries is growing constantly, so it would be unrealistic to think that, in the middle term, the region could assume leadership in the technological revolution. However, if the region begins to make substantial investments during this decade, Latin America could develop its own infrastructure within 20 years.
Figure 7.3. Percentage of GDP invested in R&D by country, 2001.

<table>
<thead>
<tr>
<th>Country</th>
<th>Expenditure on research and experimental development (% of GDP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexico</td>
<td>0.40</td>
</tr>
<tr>
<td>Argentina</td>
<td>0.42</td>
</tr>
<tr>
<td>Chile</td>
<td>0.57</td>
</tr>
<tr>
<td>Cuba</td>
<td>0.62</td>
</tr>
<tr>
<td>Brazil</td>
<td>1.05</td>
</tr>
<tr>
<td>India</td>
<td>0.60</td>
</tr>
<tr>
<td>China (2000)</td>
<td>1.00</td>
</tr>
<tr>
<td>Korea (2000)</td>
<td>2.65</td>
</tr>
<tr>
<td>Japan (2000)</td>
<td>2.98</td>
</tr>
<tr>
<td>Spain</td>
<td>0.97</td>
</tr>
<tr>
<td>Germany</td>
<td>2.53</td>
</tr>
<tr>
<td>Sweden</td>
<td>3.78</td>
</tr>
<tr>
<td>Finland</td>
<td>3.37</td>
</tr>
<tr>
<td>United States</td>
<td>2.82</td>
</tr>
<tr>
<td>Canada</td>
<td>1.94</td>
</tr>
<tr>
<td>OECD Average (2000)</td>
<td>2.21</td>
</tr>
<tr>
<td>European Union Average (2000)</td>
<td>1.93</td>
</tr>
<tr>
<td>Latin American Average</td>
<td>0.61</td>
</tr>
</tbody>
</table>

Source: Consejo Nacional de Ciencia y Tecnología (National Council of Science and Technology). Informe general del estado de la ciencia y la tecnología e indicadores de actividades científicas y tecnológicas (Report on Status of Science and Technology and Indicators of Scientific Activities and Technology), Mexico, 2004.

Figure 7.4. Percentage of technological R&D financing by country, 2000.

<table>
<thead>
<tr>
<th>Country</th>
<th>Government</th>
<th>Private Sector</th>
<th>Other Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colombia</td>
<td>70%</td>
<td>13%</td>
<td>17%</td>
</tr>
<tr>
<td>Chile</td>
<td>64%</td>
<td>22%</td>
<td>14%</td>
</tr>
<tr>
<td>Mexico</td>
<td>59%</td>
<td>25%</td>
<td>16%</td>
</tr>
<tr>
<td>Brazil (1996)</td>
<td>57%</td>
<td>40%</td>
<td>3%</td>
</tr>
<tr>
<td>Japan</td>
<td>20%</td>
<td>72%</td>
<td>8%</td>
</tr>
<tr>
<td>Korea</td>
<td>25%</td>
<td>70%</td>
<td>5%</td>
</tr>
<tr>
<td>Greece</td>
<td>49%</td>
<td>24%</td>
<td>27%</td>
</tr>
<tr>
<td>Turkey</td>
<td>48%</td>
<td>43%</td>
<td>9%</td>
</tr>
<tr>
<td>Germany</td>
<td>32%</td>
<td>66%</td>
<td>2%</td>
</tr>
<tr>
<td>Spain</td>
<td>41%</td>
<td>49%</td>
<td>10%</td>
</tr>
<tr>
<td>United States</td>
<td>27%</td>
<td>68%</td>
<td>5%</td>
</tr>
<tr>
<td>Canada</td>
<td>32%</td>
<td>43%</td>
<td>26%</td>
</tr>
</tbody>
</table>

Source: Consejo Nacional de Ciencia y Tecnología. Informe general del estado de la ciencia y la tecnología e indicadores de actividades científicas y tecnológicas, Mexico, 2004.

The region must invest in developing its own technology industry, while at the same time promoting the intelligent adoption of technologies developed in other countries.

Training and the distribution of technology

7.4 Training in technological fields will be a vital factor in the integration of curricula with business needs, given the way that information and communications technologies are defining work processes.

Such skills and knowledge must be present in all corporate areas, not just the executive and managerial levels, because the knowledge generated by the effective use of information and communications technologies has economic and social repercussions in problem solving, resource conservation and lowering operational costs, among other things.

The demand for specialists to develop and improve programs is one of the region’s principal production needs. Furthermore, in the coming years trained professionals will be required in highly innovative fields, not only to take charge of major processes, but also to train others.

Efforts to implant advanced technologies training should be focused on key figures such as public officials, health professionals and teachers, who – due to their close contact with the community – have an impact on large sectors of the population, thereby reducing the price of services, improving quality and increasing productivity.

Latin America must develop a model to harmonize traditional forms of work with new technical capacities and, to this end, it will be essential to increase access to computer hardware, software and connections. Companies’ operational and administrative methodologies will be a determinant in attracting outsourcing and offshoring activities, and in the success of Latin American business in the globalization of its operations.
Opportunities in new lines of technological development

7.5 Currently, Latin American efforts to generate new technologies (in the Mexican, Brazilian and Argentine petrochemical industries, and in pharmaceuticals and other branches of biotechnology in Argentina and Brazil) have not been able to generate a critical mass, but will be significant in the region’s economic future and job creation.

Technologies such as information, biotechnology, nanotechnology and the development of new materials will converge in a manner that revolutionizes all aspects of life.

For more than a decade, biotechnology and nanotechnology have been merging into a revolutionary new form of communication consisting of just 4 characters (2 basic pairs of nucleotides that contain all the codes of life). This is already part of the economic future of countries and companies that focus their attention on these codes and their diverse applications.

Undoubtedly, the dominant language and economic engine of this century is genetics, and it is fundamental for Latin America to attract and train specialists in these fields. Although many of the changes that will be brought about by the application of this technology are unforeseeable, there is no doubt that its impact on growth and the creation of value and jobs will be of major proportions.

The benefits of biotechnology are already evident in fields such as medicine and agriculture, even though the ethical, moral and social implications of its application are still strongly debated. Given the economic importance of genetics as a new technological and business tool, personnel specialized in applied sciences will be in great demand. Around the world, some of the occupations involved in this sector are medical scientists, biomedical engineers, environmental scientists, health specialists, biologists and chemists. Moreover, the marked tendency toward demographic aging opens up significant opportunities for pharmaceutical and biotechnology companies, the health care industry and social services.

Genetic engineering makes it possible to create medications formulated for a patient’s specific genes and to prevent genetically-based diseases. On the other hand, if personal genetic information becomes available to potential employers, for example, this could restrict work opportunities for anyone with a genetic propensity toward certain diseases. Safeguarding privacy will be one of the challenges of combining biotechnology with information technology.

Biotec ﬁc engineering can ef ciently increase productivity in agriculture and livestock breeding, and simultaneously improve crop quality through the use of seeds that are immune to environmental stress or blights. It can also be used to prevent the extinction of species and safeguard the planet’s biodiversity. Agro-biotechnology will be of special interest to Latin America, given the importance of agriculture in the region.

The social and ethical problems presented by these new technologies must be debated, keeping in mind Latin America’s urgent need to participate fully in the technological revolution in order to complete its development cycle. Some of the most important ethical and social risks are the utilization of biotechnology and nanotechnology to create biological weapons; intended control of the evolution of all life forms; and the displacement of agricultural workers due to increased productivity, leading to migrations to urban areas that intensify the concentration of untrained and unemployed populations.

The other coming revolution will be based on the combination of information technology, biotechnology and nanotechnology, aimed at making energy use more efficient and the search for new energy sources to replace fossil fuels.

It is expected that in 2020, 40% of worldwide energy consumption will still come from fossil fuels. Latin America must take long-term advantage of its supply of natural gas, oil and petroleum derivatives. If the current focus does not move toward the generation and conservation of energy, instead of exploiting nonrenewable resources, in the future Latin American countries will find themselves importing goods with high value added, in exchange for low-priced commodities.
Manpower Inc.

Manpower Inc. (NYSE: MAN) is a world leader in the employment services industry; creating and delivering services that enable its clients to win in the changing world of work. The $16 billion company offers employers a range of services for the entire employment and business cycle including permanent, temporary and contract recruitment; employee assessment and selection; training; outplacement; outsourcing and consulting. Manpower’s worldwide network of 4,400 offices in 72 countries and territories enables the company to meet the needs of its 400,000 clients per year, including small and medium size enterprises in all industry sectors, as well as the world’s largest multinational corporations. The focus of Manpower’s work is on raising productivity through improved quality, efficiency and cost-reduction across their total workforce, enabling clients to concentrate on their core business activities. Manpower Inc. operates under five brands: Manpower, Manpower Professional, Elian, Jefferson Wells and Right Management. More information on Manpower Inc. is available at http://www.manpower.com

Manpower Mexico and Central America

Manpower’s operations in Mexico began in 1969. Today there are more than 70 offices throughout the country meeting the needs of 1,900 clients and 30,000 temporary employees on average each month. In addition, the offices in Central America (El Salvador, Costa Rica, Guatemala, Honduras, Panama, Nicaragua and the Dominican Republic) report to the main regional office in Mexico. More information on Manpower Mexico/Central America is available at http://www.manpower.com.mx

© 2006, Manpower Inc. All rights reserved.
Bibliography


ANUIES. Anuarios Estadísticos de Posgrado, Mexico, 1985-2005.


Bergman, Mike and Tolbert, Mark. “Minority Groups Increasing Business Ownership at Higher Rate than National Average”, in Census Bureau Reports, United States, July 2005.


CEPAL. Balance preliminar de las economías de América Latina y el Caribe, Santiago, Chile, 2004.


CEPAL. Crecimiento económico de América Latina, una perspectiva de mediano plazo, Santiago, Chile, 2003-2004.


CEPAL. Panorama Social de América Latina y el Caribe, Santiago, Chile, 2000-2005.


CIA World Factbook. Reporte de Naciones Unidas sobre Desarrollo Humano, United States, January 2006.


Economist Intelligence Unit. http://www.eiu.com/


Eurostat. **“EU25 spent nearly 2% of GDP on Research and Development in 2002”**, in Research & Development in the EU, February 2005.


Grupo IDM. **Estudio de mercado de evaluación del uso de tarjetas de crédito en el pago de colegiaturas**, Mexico City, 2006.

Grupo IDM. **Estudio de mercado para el ingreso al mercado de remesas en México**, Mexico City, 2005.


IMEF. **Competitividad: retos y oportunidades para las empresas**, Coahulia, Mexico, January 2005.


International Monetary Fund. http://www.imf.org/


Manpower. **Confronting the coming talent crunch: What’s next?**, February 2006.


OECD. School Factors related to quality and equity, Results from PISA, 2000.


UNESCO. “Estimaciones del número de analfabetos adultos y de las tasas de alfabetización por región”, in *Informe de seguimiento de la Educación para todos en el Mundo*, 2006.

UNICEF. *Estado Mundial de la Infancia*, 2006.


Study conducted by:
Manpower Mexico
Insurgentes Sur 688, Piso 3
Col. del Valle, México, D.F. 03100
México
Tel: (52 55) 54 48 14 67
Tel: 01 800 451 1400
www.manpower.com.mx

Manpower Inc., 100 Manpower Place, Milwaukee, WI 53212
Tel: +1 414 961 1000
www.manpower.com

© 2006, Manpower Inc. All rights reserved.