

CONTENTS

CHAPTER 1 FREEDOM, POWER, REASON AND CHANGE	2
CHAPTER 2 OUR WORLD, HISTORY, POWER, REASON AND CHANGE	4
REASON AND PROGRESS.....	4
INSTITUTIONS AND CHANGE	5
INSTITUTIONS, IDENTITIES AND INTERESTS.....	6
INFORMATION, COMMUNICATION, UNDERSTANDING.....	7
IDENTITY AND IDENTITIES	9
ACTION AND CHANGE.....	10
COLLECTIVE ACTION AND DEMOCRACY.....	11
DEMOCRACY AND DEBATE.....	12
DEMOCRACY, JUSTICE, LIBERTY AND RIGHTS.....	12
CHAPTER 3 FREEDOM AND ECONOMIC GROWTH	14
SCIENCE, INVESTMENT, INNOVATION, CHOICE, AUTOMATION	14
INVESTMENT, INFRASTRUCTURE, TOOLS, PRODUCTIVTIY AND EFFICIENCY	15
CHOICE, FREEDOM, COMPETITION AND IMPROVEMENT	16
INNOVATION, LEARNING, SCIENCE AND RESEARCH.....	18
APPLICATION OF INNOVATION THE ROLE OF DEMOCRACY AND COMPETITION	19
INTELLECTUITAL PROPERTY RIGHTS.....	20
INNOVATION AND CHANGE	22
WORK, INCOMES AND HIERARCHY	22
WORK AND THE ROLE OF A BASIC EDUCATION	22
WORK, INEQUALITY AND HIERARCHY	23
EXECUTIVES, INEQUALITY AND VALUE	24
AUTOMATION AND THE FUTURE OF WORK.....	25
CHAPTER 4 CREATING A JUST FREEDOM.....	27
JUSTICE DEFINED.....	27
JUSTICE AND INHERITANCE	28
OPPORTUNITY, INCOME AND COLLECTIVE INHERITANCE	29
JUSTICE AND DEMOCRACY	30
JUSTICE, FREEDOM AND GROWTH.....	30
JUSTICE, AUTOMATION AND FREEDOM.....	31
JUSTICE, FREEDOM, COMPETITION AND CHOICE.....	32
JUSTICE AND SUSTAINABILITY	32
JUSTICE, STATISTICS AND ACCOUNTABILITY	33
CHAPTER 5 SUMMARY AND CONCLUSIONS.....	35
BIBLIOGRAPHY	37

This book is based on three simple beliefs, firstly, that we want to be free to do what we want to do, secondly, that freedom and justice are inseparable, and thirdly, that the technologies we have at our disposal make a just global freedom both possible and necessary. The aim of the book is, first, to explain how we can understand our world in order to change it, and, second, to identify changes that will create the conditions for a just freedom to flourish on a global basis. Before this can be done, it is important to understand that because our freedom is defined by our ability to do what we want to do, there is more to it than a lack of restrictions. To be free we need the right to choose, and the resources; housing, education, transport, health, diet, ability, income and wealth, to make choice real (Bauman, 1988: 2). We need rights and liberties, and power, for power defines our ability to mould our world, to live as we choose (Mann, 1986: 5). To be free, we also need time, in which to choose, in which to live, time in which we are free from the need to produce the resources that free us. This time is dependent not only on the general state of production, technology and science, but also on our specific position within the global economy.

This understanding of freedom, in terms of resources, rights and time, enables us to measure, consider and judge, global, local and individual freedom. In a context of oppression and coercion we can consider rights, liberties, and opportunities, both in terms of the absence of restrictions and in terms of the right to resources such as education and housing (Rawls, 1972: 92-93). In a global economy, dominated by exchange, and thus money, we must consider income, wealth and the cost of living as indicators of access to resources (Hayek, 1944: 67). Consideration that must include examination of the relationship between income and time in a work-based economy.

The rapid introduction of automation that has the potential to eliminate labour from production and simultaneously satisfy needs and wants, ensures that the changing relationships between work, time and income are of central importance. In a world in which billions live in poverty the impact of automation is an issue that demands careful consideration in terms of the just definition of a right to resources. Our capacity to reason, that has delivered science, technology and automation, can and should be used to understand and transform our world, in our interests in terms of freedom, and in pursuit of justice. It is, however, our action, and our action alone that will make the potential of a just global freedom real. It is our action that will redirect resources from conflict to the eradication of the poverty that breeds terror. Our action that will define our rights to resources, and the nature of work, time and income. Our action that will create global democracy, an equal and open debate, and collective decision-making. Our action that will ensure that the most effective and efficient methods of production can be used anywhere and everywhere.

It is not hard to imagine a world in which massive improvements in health, education, housing, leisure, and transport have been produced by the simple, global, application of technologies that already exist. A world in which all expect routine health checks, improved diet, sanitation, housing, clothing, improved access to medical treatment and advice, basic education, access to tools and knowledge, libraries, laboratories, and the internet. We can imagine quality housing for all, with shortages tackled by teleworking, house building, and deliberate decisions about the location of employment. A world in which the costs and benefits of automation are shared in terms of work, products and leisure, with quality local services for all and local production and consumption.

We can imagine an end to conflict based on a just peace between free and equal members of the human race, moving forward on the basis of identities that unite rather than those that divide. We can imagine a massive increase in the purchasing power of those in the developing world that will stimulate economic growth and complement massive investment in infrastructure that both supports production and meets need. We can imagine a sustainable environment, with clean fuels, reduced consumption, reused where possible and recycled

JUST FREEDOM - 3 OF 41

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when not. We can imagine entertainment free at the point of use, with creators, sportspeople, and artists paid fees that respect the incomes of nurses, teachers, labourers, and other workers. We can imagine a just freedom achieved as a result of international cooperation, with countries of similar size transferring expertise, technology, investment and friendship from continent to continent, country to country, tying Europe, to Africa, to America, to Asia. In a world of automation, of unprecedented scientific discoveries, of global communication, global disease and global terror, the time is right for a new understanding and the conscious creation of justice and freedom.

This book provides only an introduction to the arguments, theories and vision that are needed to generate understanding and motivate action. It provides links to further reading for those who want to explore but it does not and cannot provide all the facts and all the answers in a constantly changing world. It refuses to take the risk of irrelevance that is inherent in the use of the topical, the soon to be outdated. If the book is read in this spirit it will remain useful for years to come.

Our world is a shared world, which each of us experiences in a unique way. Our world is a world that is changed every day, by us and in spite of us, changes that made our past and present and will make our future. We make history in a present shaped by a past, created by those who came before (Wood, 1995: 26) for our world is a social and historic product created by people in the past and the present (Berger and Luckmann, 1966: 70). Our world is "but a pattern of human action" it "is not an unchangeable order beyond human control" (Rawls, 1972: 102). We can transform our inheritance, the result of the actions of those before us (Kitching, 1988: 44). We can change our world, social structures, institutions, perceptions, theories, lives.

This is, however, a human world that exists within a natural world, of resources, and potential, of natural possibilities discovered and undiscovered. The increasing understanding and exploitation of this natural potential, delivered by science and technology, has driven the massive economic growth of the last three-hundred years (Gellner, 1964: 140). Our survival and our freedom has been secured by production that "depends upon the physical, chemical, and biological properties of materials and the processes which can be based upon them" (Braverman, 1998: 107). Production, that at any point in time, is a function of social, political and economic institutions, institutions that define the freedom and power of groups and individuals, and may or may not promote growth. Growth is not inevitable, stagnation not uncommon, instead, growth is dependent on an institutional context that rewards and demands efficiency and quality. As Brenner has argued social organisation can mean that using nature more effectively and efficiently is not always the most rational course of action. This, Brenner argues, was the case in those societies in which the powerful took what they wanted by force, with, in consequence, no role for markets. Direct producers had no reason to "improve production through specialization and/or accumulation and/or innovation" as they gained nothing from improved quality or reduced cost. It is not rationality and innovation that determines growth but the institutional context, a context, that given our position within it, defines rational action and determines our freedom (Callinicos, 1987: 61-62).

Brenner's argument serves to demonstrate the importance of understanding the role of institutional context and power in defining freedom, an understanding that is fundamental. Power is inherent in institutions and it is in them and through them that it is both opportunity and constraint. Social, political and economic power, enables and prevents, creates and denies, it is both the source of oppression and the means of freedom (Giddens, 1984). This reality, that power, is a means to an end, not an end in itself, can result in the pursuit of power, not the pursuit of freedom, and the pursuit of power destroys freedom, for resources are consumed in conflict, weapons, torture, and war, rather than in tools, goods and services. Peace creates freedom, we gain in terms of resources and time, gains that can be distributed and redistributed as a just freedom demands. This is a goal that must become a reality, we must pursue and enforce a consensual, just distribution of freedom that eliminates conflict. The goal of a legitimate power, governing society, through a consensual democratic process must be at the heart of a just freedom, just as an understanding of power is central to an understanding of our shared world.

REASON AND PROGRESS

It is no accident that at the core of both economic growth and the consensual pursuit of freedom resides rationality serving democracy and justice through the communication of equals and growth through rational action in an institutional context. Reason, as Kant argued, is a common resource, which, because embodied in the mind, is accessible to humanity, a resource that provides the concepts that allow us to know our world (Gellner, 1992: 31). Fortunately, reason not only allows us to know our physical world, it also allows us to understand our world as a social and historic product, and it allows us to understand how this understanding can be used to transform it (Colletti, 1973). Reason enables us to understand how to change life and society to extend freedom, in resources, time and rights. Reason

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enables us to understand that in order to extend freedom, we need to ensure that our perception is based on fact, and that our actions, rather than being the result of habit and routine are consciously calculated to produce a desired result. Reason enables us, in a world in which the reality of power is a reality of force and conflict, to evaluate the costs and benefits of an action in terms of our interests in increasing our freedom. Unfortunately, however, reason does not operate in a vacuum, reason demands information and arguments, education and research, experiments and statistics, measurements and debates, all to establish true and false, to enable us to predict and act. This is fundamental, for thought is not reality, to transform we must act, for reason to be actualised in society requires people to transform theory into practice. Change is delivered by real people using thought in real societies, at particular points in history, it is not delivered, as Hegel argued, by the inevitable and gradual realisation of reason.

The decision of if and how to act, is never, however, a simple matter, for reason demands the consideration of power, of the boundaries that institutions place on our feasible options, on our rational choices. Faced with institutional power we can convince ourselves that our chosen action is unavoidable, assuring ourselves that we have acted rationally instead of undertaking an objective analysis and reaching a rational decision. Alternatively, we may have such a strong emotional commitment to an action, or a cause, that we fail to consider all information, all options, despite understanding that to do so is unwise, is irrational. We may fail to consider new information, making it fit our views, and ignoring it if we cannot, rather than forcing ourselves to challenge and change our perceptions, and the behaviour, and actions, based upon them. Our use of information can be influenced by its presentation, source and the arguments in which it is used. The use of reason is not a simple task, but it is always possible (Ward, 1995: 89). With sufficient discipline, knowledge and information it is possible to calculate the most rational course of action in pursuit of a goal. Even in a society in which to struggle against the power of an elite is to risk life and limb is it possible to use reason as a tool in the search for a just freedom.

INSTITUTIONS AND CHANGE

It is one thing to understand that we live in a world, with a past, present and future created by real people living lives in which power and reason take centre stage, it is quite another to understand how these realities are constructed. It is at the institutional level that people produce this world, creating social, political and economic systems, reproducing, transforming and remaking what is already there (Giddens, 1984: 171). Institutions involve nothing more than people acting in reasonably predictable ways to form the structures and rules by which we live. Laws, traditions, conventions, customs, production processes, the family are all institutions, because although abstract, they would cease to exist in any meaningful sense without human activity. Laws must be enforced, traditions maintained, conventions obeyed, customs followed, production conducted, family life respected, and yet laws, customs, the family, all constantly change in their practical reality without any conscious efforts. Obviously it is important to recognise that we inherit these institutional arrangements but it is also important to recognise that we can understand them, destroy them, create them anew, reform them or transform them and all on the basis of conscious decision. It is thus a simple matter to distinguish between those institutions that we deliberately design and produce and those that evolve almost unnoticed (Edquist and Johnson, 1997: 56). This fact highlights our ability to use reason to alter the institutional landscape, to rewrite the rules of a game, that affect "the game in specific and predictable ways and" are "adjusted and modified in response to the development of new opportunities" (Pejovich, 1990: 4). We can destroy and transform the institutions that perpetuate inequality, injustice and war and create in their place a world that increases freedom. We must remember, however, that change never happens without reference to power and that institutions themselves set the context for our power. As Mann (1986) points out institutions are so important, not only because they routinely produce predictable results but also because they set the social, political and economic contexts in which we live our lives, defining the possible and the improbable (Hay, 1995: 191). Institutions define our rights and the balance between free time and resources, they define our power, freedom and interests.

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The importance of institutions in practical terms is thus relatively obvious. As institutions set the contexts for our lives, defining possibilities and the extent of our social, political and economic power and thus freedom they act both as resources, enabling us to do as we choose, and as constraints limiting the options available to us. Whether we experience opportunities or obstacles as a result of any particular institution or set of institutions depends on our position in relation to them. A captive views the locks, cell, walls and wire of the prison in a different way to the captor just as employees and employers, owners and managers, parents and children, men and women, black and white, relatively powerless and relatively powerful, view the specific conditions of the institutions that impact most forcibly on their lives in quite different ways (Hay, 1995: 205-208). The fact that, as we have seen, institutions are the mechanisms for embedding power in our daily lives, for making the results routine, predictable, means that these power differences themselves are embedded and require substantial efforts to change. The example of Spartacus used by Callinicos is particularly useful in helping us to understand that it is sometimes necessary to destroy institutions if we are to achieve our goals, and that understanding this is in itself important. It is worth quoting Callinicos at length:

"Spartacus is a Thracian slave owned by a lanista, a trainer of gladiators, in Capua in the first century before Christ. Spartacus naturally wishes to return to Thrace, and believes correctly that to realize this desire he must first leave the gladiator's school. But his attempts to do so are frustrated by the guards employed (or, more likely, themselves owned) by the lanista.

In this case, Spartacus's lack of power to realize his desire is not, in any very interesting sense, a physical disability. It arises from social relations. These are not simply the structure of power within the gladiators' school, but also the broader relationships involved in the enforcement of slave-owners' rights by the Roman state. This would become clear enough if Spartacus were (as of course he did) to rouse his fellow gladiators against the lanista and his guards, and then organize a more general slave revolt. The military power of Rome would be (and was) mobilized to crush the rebels, and thus to eliminate a serious threat to the slave relations of production essential to the appropriation of surplus labour in that society.

The significance of this example is that in our explanation of what took place, ... we must make reference to social structures, since it is they which account for Spartacus's inability to realize his desire." (1987: 36)

This example is particularly helpful because institutional power, resources, constraints, possibilities and obstacles are relatively simple, allowing us to understand the essence that is present in the more complex institutions of our daily lives. It is an important point because it allows us to recognise the reasons why most of us, most of the time, do not think in terms of structures, institutions, rules, powers and freedom, let alone understand them. It is for these reasons that for the most part our lives pass in largely unconscious awareness of what is expected of us. The important point is that we can become conscious of structures, institutions, rules, powers and freedom, and in being conscious of them we can make conscious efforts to change them in specific ways (Giddens, 1984: 25-26). Developing a sufficient level of understanding is not easy, yet if we are to understand our probable powers, resources, and freedom, in alternative institutional forms, it is essential (Lal and Myint, 1996).

INSTITUTIONS, IDENTITIES AND INTERESTS

Unfortunately if we are to arrive at a clear understanding of our position in society we need to take yet another step. We must understand that the resources and constraints that we experience in terms of our institutional positions are as much a result of treatment based on identities, as identities are a result of our institutional positions. As Jenkins (1996) argues, our identities, the way in which we and others perceive us, affect the distribution of power and freedom in predictable ways just as our social, economic and political positions lead to labelling and the creation of identities. The existence of identities obviously complicates matters further, not only must we account for a multitude of institutions, we must also

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account for an almost infinite variety of identities as well. As both Laclau and Mouffe (1985) and Mann (1993) argue we are unique simply because the things that both unite and divide us are so many and varied. Sexuality, gender, region, nationality, ethnicity, age, language, physical ability, religion, class, job, economic sector, enterprise, industry, life-history and so on. The implication is clear, not only are there a growing number of groups to which individuals fit, individuals also possess many and varied interests and identities which make them members of a growing number of groups. It is important to recognise that this complex array of institutions and identities does not prevent us from coming together to change the world. There are two main reasons why this is the case, firstly, as we have seen groups of unique individuals share similar positions and secondly, despite the multitude of institutions and identities there are only a limited number that have a significant impact in terms of power, freedom and justice.

To understand which institutions and identities are particularly important it is essential to understand the significance of interests. As Giddens has explained, something is in our interests if it helps us to satisfy our wants, regardless of whether we are aware of either interests or wants (1979: 94). If a certain institutional change enables us and people like us to increase the range of wants we can satisfy and the time we can spend in satisfying them it is in our interests. Any change that increases the resources, free-time and rights that we enjoy, is in our interests, making it essential for us to understand how we increase the resources, free-time and rights that we have (Callinicos, 1987). Unfortunately this complicates matters further because we need to understand not only that institutions and identities systematically distribute resources, free-time and rights but also how they do so, in order to change them for the better. We need to understand how institutions distribute work, education, incomes, housing, services, and the rest, we need to understand that both powerful and powerless can understand how institutions, identities and change impact on power and freedom, and we need to understand that interests and justice are unrelated. This means that it may be the case that a just distribution of power and freedom is against our interests, because, in guaranteeing a certain standard of living, equal opportunities and a just income it limits the freedom we have.

INFORMATION, COMMUNICATION, UNDERSTANDING

It is information, communication, analysis, and finally understanding that allow us to rationally choose our actions based on the probable impact in terms of interests, power, freedom and justice. Information and communication are the stepping stones to an objective understanding of the world we live in. This is because any information that is intended to explain our world must be based on an underlying reality; social, natural or historic and any such information and the arguments based upon it can be judged by any and all of us. The information that we communicate about our world, the competing theories, perspectives and explanations can all be judged against an underlying reality. It is possible to lie but it is not possible to alter the number of firms or their employees or their working conditions, or the distribution of income and wealth or the facts of starvation (Gramsci, 1935). We can judge any and every claim to truth using any available evidence, gathering more information if this proves necessary, and revising and transforming our understanding to match our discoveries (Bernstein, 1976: 109).

This does not mean that developing an accurate understanding is a simple task. As we have seen groups and individuals have conflicting interests, and as our understanding of the world has a fundamental impact on our behaviour, ideas themselves are used to further the interests of some at the expense of others. Neither is it uncommon for access to research, statistics and information to be restricted yet this fact only recognises and reinforces the view that it is possible to use information to establish whether a particular view of the world is accurate. This is fundamental because this very possibility allows us to undermine and challenge ideas that serve interests rather than truth (Berger and Luckmann, 1966: 18). It is because understanding is essential in calculating the probable impact of a change, its probable success and the probable costs for us as individuals that information and

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communication are of such great importance. It is for these reasons that information is restricted and for the same reasons that it must be free and that we must pursue knowledge.

The possibility of communicating, judging and using information to change our world has, of course, existed as long as language has existed, as long as concepts have allowed us to record and communicate our perceptions. What has changed has been our increasing ability to conceptualise, record and communicate information. As Habermas has explained, first writing, later the printing press and later still various forms of electronic media have transformed the way we communicate. We can read theories, access statistics, view live broadcasts, listen to commentary, study theory, we can publish our views, contribute to debates and we can vote. The range, content and form of material is immense and all of it offers the opportunity of understanding our world and planning our actions. It allows us not only to become conscious of our place in the world, in institutions, but also to think about ourselves, about our identities, about how we relate to others (Anderson, 1991: 36). The mere availability of this information is not, however, the important part, although it is in itself essential. These technologies and the information they communicate are worthless without the ability and desire to use them. The internet is a vast resource but it only serves our purposes when we use it to understand our world, when we use it to learn, to reveal the truth.

The focus on information and communication in terms of learning, knowledge and understanding highlights the importance of education in developing our natural potential to reason and communicate. It is no coincidence that the same trends that extend access to information and improve its quality also bring education, both basic and advanced, within the reach of everyone, enabling all of us to develop our understanding of our world (Dowding, 1996: 6). Not only does this allow us to better understand our world as a product of our activity it also extends our knowledge of natural properties allowing us to produce more effectively and efficiently creating better goods and services and working less. Of central importance here is our ability to put our understanding of the world into words, transforming the practical knowledge that allows us to live, to that which allows us to consciously change our world (Giddens, 1984). As we learn we extend our understanding from an awareness of nature, to precise understanding of its properties, from recognition that social life exists, to knowledge of the distribution of power and freedom. Our knowledge develops from an understanding that individual institutions come together to form social structures, to a recognition that alternative structures would further our interests, to the definition of feasible alternative structures and finally to their practical creation. It is only with the creation of the institutions that are within our grasp that we will reach our goal. As Debord poetically expresses it "the world already possesses the dream of a time whose consciousness it must now possess in order to actually live it." (1983: Thesis 164).

The significance of information and communication is thus straightforward, they serve understanding and understanding is needed to help us to change the world, in terms of, the probable impact of our actions. It is only when we understand our world that we are in a position to combine theory and practice, understanding and action, and change our lives as we wish. Before we can do so, we have to understand that human society is a historical and social process, that our very existence is the product of previous human activity (Lukacs, 1968: 19). Failing to understand this can lead to the view that our world is an immovable, unchangeable object beyond our control (Berger and Luckmann, 1966: 106-107). Such a view makes social change unthinkable, because social change requires both that large numbers of people recognise a shared goal and that they organise themselves in pursuit of it. For a group to transform society in pursuit of a goal, it is not, however, sufficient for its members to be able to understand the institutions of their own society and those of the society they envisage. Neither is it sufficient for them to understand the probable impact in terms of cost, power, freedom, interests and justice, of their actions. To transform society it is also necessary for them to use communication to coordinate their actions, to create a sense of solidarity, a shared identity.

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IDENTITY AND IDENTITIES

The problem with identity, or more to the point identities, lies in the fact that each of us is as Kluckhohn and Murray explained (1948: 35), in certain respects (a) like all others (b) like some others and (c) like no other. We share many things in common with everyone and, if only because of our experiences, we are also unique. As Mennell notes the interesting elements are those that we share with some others in the groups to which we belong (1994: 176-177).

It is important to recognise that both interests and identities arise from the same source material, the underlying reality of our lives. This understanding allows us to examine both interests and identities, judging their significance, and arriving at an identity that can help us to create a just freedom. The importance of adopting an identity that compliments our interests cannot be understated. Identities are many and varied, but interests are not, interests can be analysed and identified, identities are chosen. The choice of an identity, in accordance with interests, or a conception of justice, in pursuit of a collective goal, socialist and socialism, feminist and feminism, is critical. We must, collectively, create an identity rather than assuming that the pursuit of interests or a conception of justice will create the common identity and collective action that the pursuit of a just freedom demands. We must critically consider our identities, the influences of our youth, those absorbed during our lives, conflicting identities of nation, religion, class, gender, party and so on. Understanding can reveal our world, generating a consciousness, an awareness, that we can use to transform our identities, but only an identity is capable of producing action.

The recognition of the fact that identity is about who we are should not thus blind us to an underlying reality. Identity is about similarity and difference, and identity must be established, it requires people or things to be classified, and this involves both us and others. We can identify ourselves with something or someone, a goal, a hero, a leader, an organiser, a theory, just as others can classify us, tell us who we are, and who we are not, setting us apart and uniting us. The formation of identities is a process, it is never final, always changing, a process of labelling which has consequences in terms of the way in which people treat each other and in terms of the way they express themselves (Jenkins, 1996). The role of communication is central, our identities are formed through a continual process of communication, a process backed by power, because ultimately it is the ability to define identities that counts (Jenkins, 1996: 22-23). History is littered with examples of the persecution of one group by another on the basis of trivial differences, religious, racial, national, ethnic, creating identities that have led to oppression, mass murder, and inhumanity. Identities that did not need to produce such horrific consequences for the creation of enemies can be resisted, we create our identities in conflict with those who would create them for us. Identities are made and remade, contested and chosen.

The subtlety of identities can perhaps best be demonstrated with regard to nationality, an identity that can be inherited or adopted. As Anderson has argued, a nation is an imagined community the members of which, despite the fact that they will never know or meet their fellow nationals regard themselves as belonging to a common community (1991: 6). This imagination is so powerful, for example, that it can lead present day Americans to identify themselves with those who arrived on the Mayflower, despite the absence of any direct link (Mann, 1993: 36). This example highlights the power of identities that can lead us to identify with our oppressors and reject those who would create justice, who would further our interests, on the basis that we are not like them. Yet because we can understand and examine our world we can choose our identities, change our way of living, see ourselves anew, and build identities that fit our interests and our pursuit of justice.

It is only when we are truly free, when discrimination is but a memory and we all enjoy true equality of opportunity that our identities will be a simple reflection of our desires. A just freedom will create a world in which our identities are solely based on our choices, a world in which we will be able to communicate these freely chosen identities to others through our "clothes, pets, religious practices, house, music, car" (Jenkins, 1996: 23) and whatever else

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we choose. To create this reality requires deliberate, calculated and conscious action, we must reflect on our power and freedom, on the institutions that surround us, on our identities, if we are to become conscious actors. As Oakeshott would have it, if we truly reflect on our situation, our actions and utterances become the outcomes of what we understand that situation to be (1973: 38). Reflection and action are not, however, automatic, reflection is dependent on information and reason, and action, is in itself, a choice. As Durkheim argued it is not the demonstrations of the theoretician that make liberty a reality, it is social change, brought about by people (1953: 55) or as Marx famously put it "the philosophers have only interpreted the world, in various ways; the point is to change it" (1965: 647).

ACTION AND CHANGE

The recognition that understanding and theory must be put into practice in order to change the world must also take account of interests, identities and justice, of those who may seek to use it. The same information, the same theory, serving different interests, identities and goals will be put to very different uses. Just as nuclear science can serve good and evil so social science, assuming that it is capable of generating an accurate understanding and reliable predictions, can serve powerful and powerless alike (Giddens, 1984). As we have seen the ability to act on available information is not equally distributed, not only in terms of access to the physical resources needed to change the world but also in terms of our ability to understand information communicated to us, interpret it and communicate to others. It is likely that those with limited power will be less able to put their interests into words, particularly in terms of institutional change. This may be due to a lack of educational opportunities or the absence of experience in communication or the lack of information, or the difficulty of expressing complex ideas in simple terms or the inability to publish (Giddens, 1984). Regardless of the reasons the result is that it is more difficult for those with less power to translate theory into action. Overcoming and challenging the common-sense understandings of society is no easy task.

Challenging, hegemony, the ruling view, the common-sense conception of society, only takes us so far, for as Gramsci argued "the political ... is both force and consent, authority and hegemony" (Sassoon, 1987: 112). Understanding this point, is important for, as Giddens argues, we are almost always able to resist sanctions, to resist force. It is only when we are physically helpless that we cannot resist and even then the moment usually passes very rapidly, all other sanctions require us to give in. Even death, is a threat that can be overused, particularly if life has little value (Giddens, 1984: 175). Authority and hegemony are the far more usual forms of the expression of power because our conscious choices have consequences. Even apparently inevitable social forces only appear so because we must choose from a limited range of feasible actions given the motives or goals that we have. Our actions only appear to be driven by an external force (Giddens, 1984: 178) and this recognition itself highlights the possibility of altering the institutional arrangements that face us. It only highlights the need to take action to change institutions rather than responding to the limited options they offer. The existence of these apparently inevitable social forces merely reinforces the conclusion that we must both refer to our ability to use reason in deciding how to act and to the constraints and opportunities that the institutional context creates (Giddens, 1984: 178). It is this recognition that is the core strength in Giddens' work on structuration. Structures are not only the, often unintended, consequence of action, they also causally govern action because our power is derived from our position in terms of institutional structures, meaning that what we can do is defined by our position in terms of institutions (Callinicos, 1987, 86)

While recognising the potential for us to act consciously it must be stressed that conscious action is rare and that there are good reasons why we don't always think about what we do. Habit is a case in point, because, as Berger and Luckmann argue, it is simply easier, requires less effort, to repeat actions without conscious consideration, than to rethink them every time we act (1966: 70-71). The fact that we can live our lives without making decisions on every action we take allows us to spend extra effort, more time, on those issues, those challenges that are particularly complex or important (Berger and Luckmann, 1966: 71).

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Habit and routine serve the same purpose as institutions providing a predictable background against which we can pursue our goals. Just as we can focus our attention and question those institutions that impact most significantly on power, freedom and justice, so can we focus our thought on those actions that will transform the world in pursuit of power, freedom and justice against a background of habit and routine. The risk that we neglect even these areas should not of course be ignored, thought is a deliberate action that is necessary to lead to action designed to change the world.

COLLECTIVE ACTION AND DEMOCRACY

Overcoming habit and routine at the individual level, although essential, is unfortunately not enough. The only way to fundamentally, consciously, challenge, reform or transform, the institutions that define our power, freedom, constraints and opportunities is to join together, to use our power to change them. This is not, of course, to deny that institutions are changed by individuals almost unconsciously changing their behaviour as they live their lives, it simply refers to a more deliberate and conscious form of action, embodied in strikes, protests, petitions, civil-disobedience, campaigns and votes. Activities that require planned, coordinated, collective action and all of which happen regularly despite Olson's argument that such action requires groups to offer "selective incentives" to gain individual commitment to the pursuit of the collective goal. While it is true that we consider both promises and threats, costs and benefits, at an individual level, intended both to encourage and discourage (Olson, 1965: 60-61) such considerations clearly do not prevent collective action.

The consideration of incentives and disincentives, regardless of their basis, whether monetary, emotional, or social, simply adds practical concerns to our views on the need to transform institutional power, freedom and justice. Fines, union dues, loss of earnings, social stigma, honour, status, pride, donations, time, all impact, and, yet, for the martyr engaged in struggle even the certainty of death does not outweigh their perceived contribution to the cause. The point being that depending on our individual outlooks almost any action can appear worthwhile or alternatively even minimal inconvenience can lead to the view that action is too much trouble.

Any and every calculation must be conducted at the individual level, based on an accurate understanding of institutional power and freedom, a conception of justice, a consideration of our interests and identities, the threats and promises that others make, and ultimately on our enjoyment or otherwise of collective action. As Schumpeter has argued in terms of entrepreneurs the prime motivation is not financial, it is the will to win, the desire to found an empire, to make a mark, to be best (1934). Costs and benefits in the sense that Olson implies simply do not determine action when such motivations, not only in business, but also in art, sport, science, and politics, are to the fore. Some of us pursue collective goals because that is what we do, that is what we want to do, that it what motivates us, it is an expression of our freedom just as it is an instrument for expanding freedom. Furthermore, the actions of heroes, leaders and organisers, can reduce the costs of our support as we follow, join, protest, and vote, while they receive disproportionate attention from the powerful. That we will all benefit from an institutional change that increases the freedom of all those in the group to which we belong regardless of our individual contribution becomes irrelevant, motivated people will struggle for change regardless of such considerations.

None of this means, of course, that collective action is not discouraged by raising the costs of action. That those involved in struggle are asked to contribute time, money and effort, and that they may risk arrest, persecution and death obviously deters action. This recognition should only encourage us to create institutions that minimise the costs of pursuing change, to strengthen democracy. This means that we should seek to ensure the existence of institutions that allow us to add issues to the agenda, that foster debate, that provide access to reliable and relevant information, that help us to identify the options from which we must choose, and the probable impact of those options, and that allow all of us to make decisions that affect us.

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DEMOCRACY AND DEBATE

The most important point to make, aside from the obvious one of ensuring that the issues on which decisions are made reflect our priorities, concerns the significance of debate in terms of delivering democracy, as the enlightened participatory decision-making that Habermas envisages (Dews, 1992: 15). The particular strength of Habermas's arguments lies in his focus on debate, on the insight that even when force is used in society there always remains the potential for it to be absent and for a consensus based purely on the better argument to emerge. This recognition emphasises the need for thorough, open, and informed debate as an essential element in democracies that could otherwise simply reflect the will of the majority. It also makes explicit the weakness of those systems which rely on the irregular election of leaders rather than direct decision-making by the people themselves. Habermas's argument also relates to the fact that it is only when people understand the world that it becomes possible to think about changing it and to articulate strategies capable of delivering change (Laclau and Mouffe, 1985: 154).

Deepening of debate, in itself, provides a context in which understanding can develop, with the direct link to a decision providing a particular reason for people engage in this activity. Even acknowledging that interests and power will never be absent from debate does not lessen the importance of Habermas's contribution. This is because it is always possible to use the available information to evaluate how interests and power influence debate and judge whether the positions being taken are fair (Outhwaite, 1994: 134). The centrality of debate is also evident in terms of information, for as Spragens (1990) argues, debate requires information about the issue at hand that is relevant, accurate and accessible. While such information is also required by consumers making choices about products, the role of debate is to open it to challenge, scrutiny, interpretation and argument. Furthermore, this information and the debate on which it is founded will by definition cover the options facing us as decision-makers and their likely impact. It is practically unthinkable that decisions made in such a way will not be based on evidence and will not take advantage of the arrival of the internet and other technologies such as digital television to share information and measure choices. If this prospect is achieved we would have the free and open public forum envisaged by Rawls (1972: 204) in which we could add proposals for discussion, gauge how they would affect us and others, evaluate them in terms of justice and freedom, and decide upon them.

DEMOCRACY, JUSTICE, LIBERTY AND RIGHTS

The argument about the role of debate in a democracy also raises important questions about the potential for injustice at the hands of a democratic majority and highlights the need to create institutions that protect the rights and liberties of all. Defenders of the freedoms of opinion and speech, such as Mill (1859: 59) are rarely slow to defend other liberties that are unquestionably important in terms of freedom and justice. Recognition that democracy can be unjust and that freedom demands the right of each of us to areas of our lives free from intrusion by others is of central importance. Civil liberties are not only essential in terms of democracy (Wood, 1995: 231) they are central to the functioning of a free and just economy and a free and just society. In practice, of course, it is important to draw a dividing line between those areas of life that should be subject to collective decision and those in which we should be at liberty to pursue our desires. This is a question that relates both to the economy, in terms of taxation and the provision of collective goods, to democracy as we have already noted and to conceptions of justice in terms of power and inequality that result from the free choices of individuals. Arguably few have contributed as much to this concept as Mill, who argued that:

"The only part of the conduct of any one, for which he is amenable to society, is that which concerns others. In the part which merely concerns himself, his independence is, of right, absolute. Over himself, over his own body and mind, the individual is sovereign." (1859: 14)

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In principle Mill's statement is uncontroversial, as are the liberty of thought and feeling, freedom of expression, liberty of tastes and pursuits, of doing as we like, as individuals or in combination, so long as we do not harm others, that he recommends (1859: 78). The practical problem is in deciding when we harm others, when our actions concern others. Taken to the extreme everything we do concerns someone else and it can be argued from a certain perspective to harm them. Recognition of this fact leads to the conclusion that we must consider the balance between our right to choose and the impact of those choices on others whenever we make collective decisions. Providing specific information about the probable impact of any proposal on our liberty must be an element in our democracy.

This recognition with regard to liberty is equally applicable to those other areas of our lives upon which policy should impact most forcibly, not only freedom in terms of rights, resources and time, but also sustainability and justice. Whatever our goals we should ensure that the decisions we make further them, considering the probable impact on a range of factors that relate directly to them. This means that we need to design a set of indicators that reveals both whether we are achieving our goals and whether particular actions help or hinder our progress. Intuition must be followed by proof of the causal relationships between the results we seek and the policies we follow in pursuit of them, an example being, the provision of basic education, relating to economic performance, to productivity, to resources gained for every of hour of work, to freedom. As will be argued below, both creating procedures to consider the probable impact of policies on specific, defined areas, and specifying, collecting and publishing indicators for small areas are simple tasks, albeit important ones. Together they can create a just, rational, transparent, democracy, a democracy in which contradictory policies become unlikely as we pursue a just global freedom.

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CHAPTER 3

FREEDOM AND ECONOMIC GROWTH

SCIENCE, INVESTMENT, INNOVATION, CHOICE, AUTOMATION

Our freedom to do what we want, when we want, not only depends on our rights, it also depends on the goods and services we can consume and the time we have to spend producing them. Less work, more play. It is, of course, never this simple, for we are unique individuals, living unique lives within complex social, political and economic structures. The fact remains, however, that more effective and efficient production is the key to freedom. The centrality of science in this process cannot be understated, for in developing our understanding of the natural world, science provides the foundation upon which all technology rests (Caws, 1979: 233-234). Science allows the ever more sophisticated exploitation of nature (Marx, 1867: 180) enabling us to spend less time and fewer resources in producing new, ever more effective and efficient products (Rosenberg, 1979: 82). Yet, for science to be of use requires that it be used in production and this requires investment to produce both knowledge and the infrastructure in which it is embodied. Investment directs resources to the production of those things that while not consumed themselves enhance the quality of our lives or our ability to produce. The task for humanity is to strike a balance between the time and resources directed to science, creativity, production, consumption and investment in order to expand freedom in a just and sustainable manner.

Science and investment are, of course, like all aspects of production, but part of the fabric of social, political and economic institutions that we create and recreate. Institutions that govern production, work, education, incomes, technology, housing, prices and more. Unfortunately the technical ability to produce goods of a certain quality in a certain quantity does not guarantee that needs and wants will be met, that freedom will increase. If our freedom is to grow, in an exchange economy, it is essential that prices fall or incomes grow in a way that reflects the reductions in the cost of production that science and investment produce (Robinson, 1969: 92). If this does not happen it will not be possible for consumers to buy all that is produced. There must also be a mechanism to ensure that producers adopt the most efficient and effective methods, whether, as Adam Smith argued this mechanism is the market, or some other form of regulation, is a matter for experience rather than dogma.

Regardless of the mechanism there is a further challenge that must be addressed, for the application of science to production has saved labour to such an extent that it is undermining institutions based on the sale of labour (Robinson, 1979: 92-93). In an automating world labour can and has been totally eliminated from an increasing range of production (Catephores, 1989: 12). This both creates the opportunity to deliver a society in which we can throw off the burden of work (Schumpeter, 1934: 22) and poses the threat of redundancy, unemployment, and poverty in a world divided between labour-intensive service and an elite of privileged producers (Rifkin, 1996: xviii). Unless institutions are transformed our need to sell our time in order to buy what we need will mean working for those who can identify, satisfy and profit from demands based on the intensive use of labour (Gorz, 1982: 134). If the right to choose how we divide our time between work and leisure (Friedman, 1962: 162) is to mean anything we must create institutions that allow us to share the benefits of automation and share them through more leisure, improved products and increased consumption, without destroying finite natural resources.

The recognition of the challenge created by automation focuses attention on the role of institutions in economic life. Institutions that impact on investment, education, science, innovation, choice, quality and efficiency (Lal and Myint, 1996: 16). Institutions that both evolve as a result of continuous human interaction and that are consciously created and recreated allowing us to judge them and to use democracy to choose those that do most to promote justice and improve the efficiency and quality of products and production. For a state to consciously create these institutions requires both the legal monopoly of force and the ability to overcome those who may challenge it. Even in an economy in which decisions about what to produce and how to produce are made not by the state but by private initiative

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there is a clear need for government to generate, interpret and enforce rules (Friedman, 1962: 15). The state must provide institutions that define and enforce the rules of the game because private enterprise is incapable of doing so (Hayek, 1944: 28). That the state and the state alone can perform this function does not prevent it from either producing or funding production undertaken on its behalf by private firms. The sole condition for the growth of freedom is that the state determines, interprets and enforces the rules impartially, creating the opportunity for democratic control and the competition that drives quality and efficiency. Central to this framework is the maintenance of a system of law and order, a social and historic product, that defines and enforces rights, contracts and property (Pejovich, 1990: 28) and thus provides a context in which rational decision-making is rewarded (Lal and Myint, 1996: 8)(Strange, 1988: 23). This framework, is as Friedman argues, a complex social creation, which, despite our tendency to take it for granted, was developed over centuries (1962: 26).

The importance of this framework can be grasped by considering the three factors that are perhaps most fundamental for growth, namely, investment, choice and innovation. Investment because it creates assets that improve the efficiency of production or the quality of the products we consume. Choice because it forces producers to continually improve products and processes and because without it we are not free. Innovation because the application of knowledge to the improvement of products and processes creates both opportunities for investment and enhanced choice and demonstrates the relationships that bring the parts together as a whole.

INVESTMENT, INFRASTRUCTURE, TOOLS, PRODUCTIVITY AND EFFICIENCY

The significance of investment is obvious, investment expands our freedom because the creation of assets allow more efficient production and enhanced quality. It is for this reason and this reason alone that we invest in exploration, science and education, infrastructure, housing and research and development. Investment can, of course, take place outwith society, in tools and ideas, as it has for millennia, yet, investment is most effective when it combines a multitude of resources and this requires institutions to direct resources from consumption to the production of assets. The role of finance in this process is central for without it investment either requires political coordination and cooperation or coercion that limits the completion of projects to those with either political power or the ability to come together in voluntary cooperation. Financial institutions, on the contrary, by lending multiples of the sums deposited with them, allow individuals to raise funds and use them to purchase and organise resources as they wish whilst allowing others to save and invest, in so doing, enabling projects to be funded from numerous small sums (Samuelson, 1955: 291-313). It is inconceivable in a world of finite resources that the motivation to save and the demand for a return on those savings will disappear (Cockshott and Cottrell, 1993: 108). Individuals must be allowed to save and invest as they choose, returns on which are just, as long as income and wealth is fairly distributed.

The role of share-ownership in terms of investment is less clear-cut. The gulf between asset and share values, the relationship between share values and profit, the role of unaccountable investment funds and the lack of a direct link between the purchase of shares and real investment are all concerns. The fact is that the purchase of shares is a gamble on future share-prices and dividends that does not lead directly to the creation of assets (Robinson, 1978: 72). It is far more common for real investment to be funded out of retained profits, loans or other financial instruments than it is for it to be funded from share issues (Robinson, 1978). That said, the culture, innovation, vision, structure, creativity and expertise of organisations and individuals mean that those using virtually identical resources produce very different products and levels of service. It is the quality of the total product provided by an organisation that creates the premium of enterprise value over asset value. When share values reflect this innovative drive, this entrepreneurial success, it is hard to fault them, despite the fact that, in the main, equity investment follows the creation of assets, intellectual or otherwise, rather than funding them. There is no reason why we cannot reduce this premium, of enterprise value over asset value, by creating competing enterprises at cost in

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imitation of the most efficient and effective in any given field, with prices and incomes adjusted accordingly.

It is also important to note that the absence of a direct link between equity investment and real investment causes problems in terms of the rise and fall of share prices that destroys the savings of millions and the growth of the wider economy. Speculative investment and the routine pooling of savings and pension contributions in investment funds, leads to share price rises, without any direct result in terms of real investment. The unavoidable result is an eventual shattering of the illusion and sudden fall in share prices that reduces the ability of consumers to make purchases and undermines confidence across the economy.

It is here that another related tendency of the free-market enters the equation, for investment in response to opportunity and demand, also creates a cycle of boom and slump. A surge of investment, creating a supply of products above and beyond what consumers are willing and able to buy, resulting in falling prices, disinvestment, job-losses and recession. The consequences of both types of boom and slump are identical and unavoidable aspects of a free enterprise economy, which require intervention to restore demand, confidence, and investment. There are three typical responses, the reduction of interest rates, which through access to credit, encourages private investment and consumption, public investment to stimulate demand and tax cuts to increase private investment and consumption (Robinson, 1969: 96)(Schumpeter, 1961: 195). The problem with both tax cuts, which in any event take time to introduce and impact, and interest rate reductions, is that neither create either investment opportunities nor a desire for new products when investment opportunities and desire are absent. This problem is only compounded if tax cuts are focussed on high-income groups, who see no opportunity for profit during a slump and whose desires are more than met. More effective by far is state spending which can include private sector contracts, and which, by definition, delivers employment, income, assets and purchasing power, and also create the investment opportunities required to stimulate private enterprise.

Regardless of the role of equity investment in the developed world, it is essential to all but discount it in the developing world where private initiative has unambiguously failed to materialise. Deterred by the conflict, poverty and instability that only investment in infrastructure, and the rule of law, can end, and the absence of consumers able to satisfy their desires, private investment in the developing world follows rather than leads. Only massive public investment can be guaranteed to provide the infrastructure necessary to eradicate poverty, generate growth and deliver the equality of opportunity that justice demands. Infrastructure investment that in transforming lives, reduces conflict, terrorism and crime, that creates opportunities for trade, stimulates private investment and delivers growth, and that is compatible with competing approaches and providers, public and private. In an environment in which the rule of law is respected such investment is far more effective than military spending, generating growth in the developing world and trade with the developed world that in time removes the distinction between developed and developing. Given the benefits, and despite the complexity, the issue of funding, a matter of political will, must be secondary, and yet the impact on security suggests that resources could profitably be diverted from a military that could simultaneously be transformed into an institution focused on development and a humanitarian mission. Reform that could extend to the expensive agricultural subsidies and trade-barriers that distort trade and do little for the rural poor in developed or developing world alike. Regardless, the argument for public investment in the developing world in both economic and moral terms is overwhelming.

CHOICE, FREEDOM, COMPETITION AND IMPROVEMENT

In considering the impact of investment and the institutional context in which it takes place we must also consider the impact on our freedom to choose that like investment is central to a system of production that increases freedom. This is because choice allows us to live our lives as we wish, in work and leisure, as customers and citizens. As customers, able to choose from competing products when competition is possible (Nove, 1991: 243) and as citizens able to choose the rules by which we all live and the goods that we all share. This

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formulation, market where possible and just and democracy where not, provides the foundation for freedom that is strengthened by the competition and pursuit of excellence that choice creates. The case for competition on the market is simple, when free to choose our choices reflect our preferences in terms of cost and quality, and thus encourage excellence and efficiency. Our choices drive innovation, forcing enterprises to focus on customers, in order to produce the better, cheaper products that we demand (OECD, 1996b: 23). Those unable to meet the needs of customers, owners and staff are unable to survive as they lose sales and fail to deliver profits (Wood, 1995: 123). Competition thus encourages producers to improve the quality and efficiency of products and production and assuming that legal and other obstacles do not prevent others from adopting new methods and supplying new products, it erodes the gap between price and cost, rapidly eliminating excess profit.

Competition does not, however, arise automatically, choice requires an institutional framework, determined, interpreted and enforced by the state (Friedman, 1962: 15). Competition requires institutions that "can never be adequately provided by private enterprise" (Hayek, 1944: 28). The state must, for example, act to provide a monetary framework, a legal system, and more fundamentally, to prevent competition from degenerating into the monopoly and collusion that Adam Smith predicted. This is because, left to their own devices businesses avoid the pressures of competition and customers (Henley, 1990: 35) whenever they can (Smith, 1776: 164) increasing profits (Smith, 1776: 333) and slowing progress in the process. In short, the active creation of competition is essential if choice is to drive freedom, it requires that new producers and products be encouraged and that compliance with that regulation that is necessary is simplified and automated to the point of routine, and this on a global scale. For if competition is to deliver maximum benefit it is essential that a regulated free-trade system is established, a system in which the subsidies and barriers that distort competition and choice are dismantled in favour of compensatory income payments and direct investment in public goods. Only such an approach can ensure that competition from imports extends choice, promotes efficiency and provides the developing world with the access to markets and technology that it needs (Nove, 1991: 243).

This is not to argue that such a system should be unregulated, for, as Hayek argued, regulation and prohibition is both "fully compatible with the preservation of competition" (1944: 28) and ensures that collective interests are considered. It is essential, in fact, that we recognise that there are areas of the economy in which choice must be limited, because there are goods, services and experiences, which, by their nature are consumed collectively and affect each and every member of society (Lane, 1983: 130). It is simply not possible, as Hayek points out, to allow choice in the air we breathe, the rain that wets us, or the signposts and roads we use (1944: 28-29). Neither will private initiative supply public goods, such as hospitals, schools, garbage disposal, emergency services, defence, welfare or law and order (Rosenberg, 1979: 96). These are goods which both freedom and justice demand all can consume in a world in which purchasing power is the price of entry to choice on the market, a price that billions cannot pay and that creates the absurdity of unmet need and idle resources (Robinson, 1960: 35). It is here that democracy enters the equation for wherever and whenever private enterprise fails there must be no hesitation in procuring or delivering services under direct democratic control as the only means of providing choice. This need not mean that direct provision eliminates individual choice, for universal access and public provision is perfectly compatible with competing products and methods of production, in health, education, transport and elsewhere. There are no obstacles, geography, cost and technical monopoly aside, to prevent public funding or public enterprise from providing individuals with the ability to choose from a range of providers, private and public alike. There is thus every reason to test the advantages of public enterprise in terms of direct democratic control, economies of scale, the potential for egalitarian forms of work organisation, access to low cost finance underwritten by tax income, and the ability to reinvest rather than reward investors, via competition. Such competition represents a choice for democracy combined with the demands of competition.

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In addition to the recognition that public enterprise is compatible with competition it is also important to accept that waste is a defining element of choice, for it is an unavoidable aspect of the unpredictability that choice brings. Waste is an explicit fact of unused and unwanted products created to satisfy untried demands, and the advertising that encourages us to consume them (Nove, 1991: 45). The result being that a large part of the price of any product is a payment both to those who persuaded us to buy it (Robinson, 1969: 18) and for those products destroyed without ever being used. It is not unusual, for this part, in an age of mass production and mass media, to exceed that paid to those whose research, development, innovation and production delivered the product in the first place (Meszaros, 1995: 532)(Henley, 1990: 17). It is, however, possible to minimise this waste, to introduce reforms that direct efforts, to research rather than promotion, to develop an improved understanding of customer wants and needs and products that satisfy them. Such an approach would aim to replace promotion and the carnival of advertising with simple, cheap, reliable and objective product information that would empower citizen and consumer alike. These are reforms that would support the rational pursuit of excellence and allow real choice creating the potential to undermine the premiums charged by brands on the basis of unquestioning routines of consumption and the victory of image over substance (Nove, 1991: 78). The potential to compare competing brands, products and producers in terms of product quality, environmental impact, sustainability, fair-trade and so on would create a world of logos competing on cost, quality and ethics. Logos that would, in addition to democracy and regulation, provide consumers and campaigners with the opportunity to influence business decisions in a way that anonymous products do not.

INNOVATION, LEARNING, SCIENCE AND RESEARCH

These reforms also give prominence to the central role of innovation in uniting the whole, a role that is perhaps most significant of all, and this despite the fact that innovation is nothing more than the application of science, imagination and desire, to production. Given this mix and the role of science in it in providing the foundations, upon which innovators build products and processes, it is critical that we understand how we learn, how we translate observation and experience into understanding. Fortunately the path from ignorance to knowledge is a simple one. In order to learn we create concepts and theories that we evaluate against evidence from our observations. This process in itself defines and devises measures which allow us to develop and test theories and the nature of reason allows us to analyse them, judging our arguments against the available evidence. This process produces knowledge which can be easily communicated and assimilated by anyone with sufficient understanding of language and reason at any time and in any place (Cefola, 1998: 110). Furthermore, both because the circumstances in which knowledge can be applied vary endlessly and because perfect knowledge is an unattainable goal, existing knowledge is continually added to in a learning spiral. The knowledge that we have about how to do something is recorded, shared, tested, put into practice and revised (Foray and Lundvall, 1996: 119)(Cefola, 1998: 110). As long as we record our insights we add the benefit of our experiences and observations, creating knowledge that we can share with others (Cefola, 1998: 110). All that is required for learning to be shared is that we monitor and evaluate our experience. In an era in which information and communication technologies are becoming ubiquitous measurement and analysis are being automated, the production of knowledge itself is becoming routine.

The following table from Bohn (1994: 299) describes the progress that has been made.

"Stages of Knowledge

Stage	Name	Comment	Typical Form of Knowledge
1	Complete ignorance	Nowhere	
2	Awareness	Pure art	Tacit
3	Measure	Pretechnological	Written
4	Control of the mean	Scientific method feasible	Written and embodied in hardware
5	Process capability	Local recipe	Hardware and operating manual
6	Process characterization	Trade-offs to reduce costs	Empirical equations (numerical)
7	Know why	Science	Scientific formulas and algorithms
8	Complete knowledge	Nirvana	

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Despite the simplicity of learning as a general process it must be stressed that the practical aspect requires an immense investment of time, effort and resources. Scientists and philosophers have spent lifetimes producing concepts that couldn't be tested with the tools they had at their disposal. Even now with the recent advances in computing, biology, physics, genomics and elsewhere the academic training and research resources required are incredible. The huge and unknown costs of exploring the natural world, discovering its secrets, understanding them, and applying them in production not only means that reliance on private effort alone is impractical (Freeman and Soete, 1997: 263-264)(OECD, 1996b: 214) it also creates a tendency for firms to spend far less on basic and research and development than on trivial product differentiation and image (Freeman and Soete, 1997: 377). Even when private investment in basic research and radical innovation is forthcoming the need to protect private investment restricts the sharing of information and hinders the search for knowledge. The result is to divide the scientific community between those who support free public access and those who demand the right to exploit research for personal gain (Foray, 1997: 77). This divide not only limits progress it also erodes the long-standing scientific ethos that treats discoveries as common property for the common good (Spragens, 1990: 94). The fact that scientific values "mandate that one scientist communicate and share his data and ideas with his fellow scientists" (Spragens, 1990: 94) causes problems, not only, as noted, for business, but also for the military. In consequence "whenever particular scientific findings have military uses or commercial possibilities, the ... temptation to ... appropriate these findings creates serious tensions with the ethics and traditional practices of the scientific community" (Spragens, 1990: 94). The result is that firms tend to rely on publicly funded institutions to provide the skills, knowledge, information and technology that they need (Edquist, 1997: 1-2)(Freeman and Soete, 1997: 263-264). It is clear then that in order to generate maximum benefit from innovation public funding should provide "a highly developed scientific and technological infrastructure" creating "a world stock or pool of knowledge" with access unlimited by "cultural, educational, political, national and proprietary commercial barriers" (Freeman and Soete, 1997: 271)(OECD, 1996b). It is more efficient and effective for the public to pay for the production of concepts, insights and discoveries and to give them away for free than it is to rely on private initiative (Nelson and Romer, 1996: 59)(Smith, 1997: 89).

APPLICATION OF INNOVATION THE ROLE OF DEMOCRACY AND COMPETITION

Without application, however, science delivers nothing. It is not enough simply to provide a resource to be used by any individual or organisation, public or private, to develop life-enhancing processes and products, it is essential that organisations are motivated to improve. Even if the pursuit of innovation is now routine and automatic (Freeman and Soete, 1997: 194) it is not without cost and as such innovators must be encouraged. For companies the motivation is clear, to survive, to employ managers and workers, and to make profits for owners they need to use technology to better meet the needs of their customers (McKelvey, 1997: 201)(Freeman and Soete, 1997: 263-264). Where these pressures operate, companies in continuous pursuit of the untried, create products and processes that better meet our demands, creating new experiences and transforming existing ones (Schumpeter, 1961)(Harvey, 1989: 106). Such enterprises exploit new discoveries and pour investment into products from which we all benefit as they reach a mass market (Freeman and Soete, 1997: 146). In the public sector the motivation for improvement is the power of democracy that demands an unwavering focus on customers, citizens and other stakeholders. In both cases organisations must adopt best practice if productivity gains and better products are to be realised (OECD, 1996: 135)(Freeman and Soete, 1997: 31 and 282). Regular contact and involvement with advanced university research, aided by a supply of competent employees that such institutions provide is essential (Freeman and Soete, 1997:377).

The risk is that the need to improve can be disregarded whenever competition is limited or democracy ineffective. It is a risk that serves to demonstrate the importance of competent and vocal stakeholders providing valuable technical insights which help to improve the performance and design of products (Carlsson and Jacobsson, 1997: 288)(McKelvey, 1997: 212). It should also be recognised, however, that competition is not without its problems, for

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firms operating under competition are unwilling to share the secrets of their success with those who want and need to copy the innovation and eliminate any temporary advantage (Sweezy, 1970: 47). Whether the innovating firm charges more for a better product, or produces an existing product at reduced cost, or decides to forsake short-term gain to buy market-share is irrelevant, the result is that society loses out (Robinson, 1969: 85). The longer the innovator can prevent competitors from copying an innovation, the longer they enjoy their temporary monopoly, the longer they can protect their advantages, and the more society loses (Robinson, 1978: 185). Even when an innovator decides to avoid production for fear of destroying existing lines, society loses (Foray, 1997: 78). The ideal situation is for all products to be produced using the most effective and efficient methods.

INTELLECTUAL PROPERTY RIGHTS

In order for a firm to prevent competitors from copying an innovation there are only two main options available, secrecy and legal protection through intellectual property rights (IPRs). In turn the two main methods for defining IPRs are patents and copyrights, each with a very different rationale:

"patents confer a monopoly right over a device or a method, and are awarded on the basis of novelty, originality, and non-obviousness ... in exchange for public disclosure of codified knowledge (see Besen and Raskind, 1991; David, 1993)" (Foray, 1997: 68).

Copyright, on the other hand, grants a tradable monopoly for a fixed period, to the creators of certain categories of material, which once produced can be copied innumerable times. Copyright covers software, literature, art and music. In return for a period of monopoly, patents make discoveries, inventions and innovations available to others, at low-cost, allowing anyone to judge the merit of an approach, to identify best practice and to make decisions about their own work (Foray, 1997: 71-72). The justification being that IPRs; patents, copyright, encourage discovery, creativity, innovation and progress through the benefits individuals and firms gain from the monopoly rights they are granted. That we all desire a just return for our efforts is beyond controversy, the question, however, is whether the returns that firms and individuals receive under the current IPR regime are just, effective and efficient. Whether, as Friedman argues the cost and potential for legal action deters incremental innovation based on competitors products (1962: 29). Whether discovery, creativity, innovation and progress could be bought more effectively and efficiently. The issue is particularly important given the growing ease of communication delivered by information and communication technologies (ICTs) which make it ever easier and cheaper to store, copy, verify and communicate information. In fact costs are so low that a global library of entertainment and knowledge, of copyright material and patents, is becoming a reality despite the legal obstacles (Foray and Lundvall, 1996: 117)(OECD, 1996b 14)(Freeman and Soete, 1997: 405). This reality and the ability to own and trade ideas, sounds, words and images, has created a situation in which huge profits accrue to an elite that often excludes those who produced the original work, profits which increase the cost to the consumer. Yet the issue is neither new nor complex (Smith, 1776)(Hayek, 1944: 28)(Friedman, 1952: 29) it is simply a matter of the balance between individual incentive and public good established by defining the scope and period of protection of IPRs. There is now mounting evidence that the protection offered by current IPRs is not necessary to secure innovation and creativity. That concepts aren't protected, while products are, that the supermarket and "basic mathematical formulas cannot be patented or copyrighted" while "the code for a computer program, the text of a novel, or the tune and lyrics of a song" can (Nelson and Romer, 1996: 52) has had, for example, no great impact on endeavour.

Reform of IPRs must, therefore, result in increased use of discoveries, concepts and insights, reduced duplication of research, swift, independent verification of results (Foray, 1997: 66) and wider enjoyment of sport, art and entertainment. Limits on the opportunity to exploit existing knowledge should be eliminated allowing all to exploit it to pursue improvement and in so doing greatly increasing the prospect of advances that would benefit us all (Foray, 1997: 66). Linux, like all open-source software, open to all to improve, provides

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an inspirational example of what can be achieved, with contributions from academics, students, enthusiasts, the public-sector, and a private-sector eager to sell services, support and training. Given the scale of public spending on basic research and development and the purchase of new technology it is not far-fetched to imagine a situation in which scientists, researchers and developers, across public and private sectors contribute to a global stock of concepts and products accessible to any and welcoming any contributions. As long, however, as IPRs continue to guarantee monopoly protection to those who unearth new laws of nature or develop new products, whether they be drugs or genetically modified organisms, they will be used to generate profits, as the price of progress, and they will limit use regardless of deals to allow access for the poor or ill.

There is also a strong argument for reform of those IPRs that impact on an entertainment industry (OECD, 1996b: 126) that depends far more on the sale and resale of rights than on the creation of products. The wealth of those who most benefit from the industry being created by the gap between the price we pay and the cost of production, reproduction and communication. A gap, depending crucially on the insignificant cost of reproduction, which is resulting in a rebellion of consumers no longer willing to pay the inflated prices demanded of them and instead turning to internet file-swapping services (Cefola, 1998: 111-112). The risk, however, to those parts of the industry where costs of production are considerable is, both real, and difficult to quantify for even when the incomes of superstars are stripped out the costs of designing, developing and producing software, television and films can be enormous. Clearly without means of earning a return on this investment private enterprise would be untenable.

One answer is the introduction of mandatory licensing systems that guarantee access and provide producers with a return for effort and investment (Foray, 1997: 76). It would also be possible to introduce shortened periods of patent protection and relax novelty requirements, encouraging early disclosure and limiting the range of exclusions, a solution which, in the case of Japan, is claimed to be particularly effective in promoting cooperation and competition (Foray, 1997: 73). In either scenario, the result should be to cement the principle of the library that is present in performing rights, royalties and the public lending right as the foundation on which access to entertainment, science and innovation are constructed. A principle that entitles the creator of a product to payments for use (Brophy, 1983: 1) and could be tailored to the cost of production and the popularity or significance of the product, innovation or discovery. It would be perfectly feasible for such a system to be funded in whole or part by taxation, with a range of charging options from free access to limited tariffs and subscriptions dependent on product and form of use. There would also be flexibility in mode of access, library, internet, digital television, mobil-phones or any other channel. Such reform would replace the dominance of parasitic firms that profit from IPR monopolies in software, drug development, genomics, and the media with a system of public access that reduces cost, increases consumption, creates competition in distribution and production and improves equality by limiting the excesses of sport and entertainment stars alike. These are objectives that are so fundamental that if the reforms suggested above failed to deliver them it would be the reforms rather than the goals that had to be discarded.

In addition to reforms of IPRs there are strong arguments for a new approach in terms of state funding of both basic research, aligned to criteria of technical excellence and social priority, and the entertainment industry to both support new reward existing producers and products. Given that, as Schumpeter argued, most innovators are not motivated by money, that it is achievement that drives them, with wealth but one mark of success among many (1934: 93) there is every reason to believe that this approach would work. State funding would, as it has in the past in terms of the exploration of space and the development of weapons of mass destruction generate "much more radical product innovations" (Freeman and Soete, 1997: 258). The emphasis, would not, however, fall on these areas, on the contrary it would focus on those issues that most impact upon humanity, on health, education, and the environment. Basic research and procurement would pursue goals in these areas without removing competition (Freeman and Soete, 1997: 417) whilst

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simultaneously exploiting the fact that the public domain is both the source for the basic ingredients of innovation and the forum for regulation and standard-setting. The state would not only innovate directly and share the results widely, it would also exploit its direct role in procurement to encourage and spread innovation, through "the large section of services that is publicly owned or controlled" (OECD, 1996: 13).

INNOVATION AND CHANGE

While these reforms should have a huge impact they are neither designed nor capable of addressing the profound impact of innovation on global society. Innovation transforms our world, because, as Schumpeter, argued a world changing technology requires educational, social and managerial changes, as well as numerous technical innovations, in a variety of areas (Freeman and Soete, 1997: 184). Institutions that deal with the costs of change and compensate the victims are necessary if innovation is to provide the motor that drives an economy (Freeman and Soete, 1997: 330). This "institutional set-up" must include "social security arrangements, education and retraining rights" and "labor market arrangements" (Edquist and Johnson, 1997: 53). Innovation can serve humanity, but as the challenge of automation demonstrates, for it to do so we must be clear in the goals that we pursue, for, as Castells argues automation could either lead to reduced employment, increased consumption, a reduction in work-time, or a combination of the above (1998: 256).

WORK, INCOMES AND HIERARCHY

It is in work that innovation, skill, education, technology, incomes, hierarchy and inequality come together to define our freedom. The results of innovation, dependent as they are on knowledge, science and technology, are never solely determined by them, on the contrary they are social products moulded by those who produce, consume, own and manage. It is these social aspects of production that determine our individual freedom in terms of our incomes, the jobs we do and the hours during which we do them. The reality is of massive inequality that exists in spite of our basic equality as human beings, for, as Adam Smith observed over two hundred years ago:

"the difference of natural talents in different men, is ... much less than we are aware of; and ... is not ... so much the cause as the effect of the division of labour. The difference ... between a philosopher and a common street porter ... seems to arise not so much from nature as from habit, custom, and education" (Smith, 1776: 120).

Recognising such basic equality is of crucial importance not only in moral but also in economic terms. This is because new technologies, used in complex, rapidly changing production systems are dependent on workers who can quickly develop new skills, adapting to the demands placed upon them (OECD, 1996: 135). Such production systems place a premium on learning and research and development and thus create a demand for workers who can solve problems and communicate solutions (OECD, 1996b 47-48). Innovation demands an educated labour-force capable of the routine search for, generation and application of knowledge (Edquist and Johnson, 1997: 58). It is only educational institutions that can provide the skilled, flexible and intelligent individuals who alone are capable of extending the frontiers of knowledge and of transforming discoveries into products and processes that enrich our lives and expand our freedom. Concentrating educational resources on equal access to basic education, and the parenting of the youngest members of society, ensures not only that all our children have the opportunity to develop whatever natural potential they have but also that our freedom is expanded through productivity, growth, flexibility and innovation.

WORK AND THE ROLE OF A BASIC EDUCATION

Only a basic education can provide the firm foundation in terms of literacy and numeracy, the ability to solve problems, to reason and apply concepts to new contexts, that enables us to upgrade our skills and competencies on an ongoing basis. Only a basic education, defined by parental, nursery, primary and secondary education, and enhanced and extended by free access to courses and resources in libraries and the internet, can be expected to raise

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standards across the globe, creating opportunities for all regardless of nationality, class, ethnicity or gender (Lal and Myint, 1996: 171). These are opportunities that demand that access be unlimited and affordable, with neither fees nor loss of income as obstacles to participation (OECD, 1996b: 226). The solution is a combination of free distance learning and employment, a combination that is compatible with the central roles of universities, as research institutions producing new knowledge and as educators in spreading it (OECD, 1996b: 211)(Spence, 1996: 68). This is a combination of local resources and distance learning that would allow an interested minority access to the tools, laboratories and resources required to extend the boundaries of knowledge and create an educated majority able to exploit the fruits of their labours. The creation of mass educational opportunity should also serve to address the issue of equality that Smith articulates, creating pressure to reduce income differentials, although, clearly, struggles over income distribution will never be resolved by the expansion of educational opportunity alone (Sundrum, 1990: 291-293). An expansion, that should, nevertheless, deliver in terms of health, crime, behaviour, and quality of life.

WORK, INEQUALITY AND HIERARCHY

That equality of educational opportunity does not produce greater income equality is due to the fact that earnings bear little or no relation to skills, abilities, or performance. This is because the economic and educational institutions that distribute access to opportunities and employment restrict entrance to the world of work through a variety of mechanisms (Wright, 1981). Professions guard their privileges jealousy (Friedman, 1962: 107) unions attempt to secure preferential treatment for their members (Wright, 1981: 66) and both insulate the privileged from competition in order to secure above average wages, paid for by everyone who has to pay higher end-prices (Phillips, 1990: 98). As Friedman points out higher incomes for professionals and union members reduce both the number of jobs available and the opportunities for non-members, lowering their wages and deepening inequality (1962: 124). In essence there exists a privileged, if fragmented, group of workers and professionals who "enjoy high wages, high fringe benefits, high employment security, and often the protection of unions" and a less fortunate mass who experience, low wages, few benefits, and "more frequent spells of unemployment" (Saint-Paul, 1996: 2). It is difficult to move from this periphery of low-status, unrewarding and unrewarded employment, to the secure, high-income core of the global economy, if for no other reason than that insiders are routinely preferred to outsiders. Vacancies are for the most part filled by internal promotion denying even a pretence of equality of opportunity or competition and ensuring that neither justice nor market enter the equation. That "the market is the main source of recruitment in the secondary sector" (Saint-Paul, 1996: 2) only highlights the double standards. It is institutions that discrimination is embodied, institutions that create a privileged, non-competing core, providing them with security and high-wages, and a low-wage periphery, in which all are equal, regardless of "colour, race, creed, gender" (Wood, 1995: 267). The resulting injustice and waste can be seen in the growing spectacle of educated underemployment and growing credentialism. As Keep and Mayhew observe "graduates today are doing jobs which graduates a generation ago would not have contemplated" while employers are failing to offer "them the scope to perform more effectively ... than did their non-graduate predecessors" (Keep and Mayhew, 1995: 124). Education is no guarantee of either satisfying, secure and rewarding work or a reasonable income. As Friedman notes while the average return to education may be high, individual returns vary greatly, a few earn a lot, most do not (1962: 102-103) which poses real issues in terms of financial support for students.

The fundamental issue is the organisation of work. In the past the denial of educational opportunity left employers with a limited supply of potential employees, which provided a rationale for income inequality rooted in hierarchical systems of production. With growing educational opportunity supply is no longer limited yet inequality of responsibility and reward is more entrenched than it was in the past. This is because rather than dismantling the organisation of production that provides privileged positions managers have sought new ways to discriminate between candidates of equal ability and protect their privileges. This

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explains why more graduates and non-graduates now take on postgraduate study, as lawyers, teachers, social workers and managers, pursuing qualifications that limit competition in their chosen career (Connor, 1995: 38). The result is a wasteful credentialism focussed on career progression rather than effective, efficient or just production. It is no coincidence that access to many of these courses is limited to those who have stepped on to the first rung of the career ladder in a secure occupation.

EXECUTIVES, INEQUALITY AND VALUE

The recruitment and selection of senior executives follows the same pattern, for, while formal skills and qualifications do matter in recruitment, they are only the starting point and their influence is weak (Keep and Mayhew, 1995: 112). Even those who can afford the time and money required to gain qualifications are confronted with the need to cultivate the necessary networks based on connection rather than ability, for selection panels choose the candidate they prefer from a number of equally qualified individuals. The fact that experience is dependent on promotion and promotion on experience further restricts opportunity. This systematic denial of experience and opportunity ensuring that "a great part of the level of the high salaries" of executives "are like selling costs, a phenomenon of imperfect competition, not a necessary cost of production" (Robinson, 1978: 6). It is chance, experience and connection that limits executive employment to a lucky few selected from "a mass of equally able candidates" (Gorz, 1999: 45). The incomes of these executives, who make decisions on the basis of a range of carefully researched options, reflect position rather than performance, position rather than the supply and demand of skills, knowledge and ability. These are an elite, who on boards and panels in private and public sectors, set each others pay (Crouch, 1983: 201-202). These are the high earners who receive their incomes "from salaried appointments at the highest level of the corporate system" (Scott, 1994: 118-119). Despite the potential for democracy created by the revolution in information and communication technologies virtually nothing has been done to reduce the power, wealth and income of this class, whose shared interests, a legacy of inherited wealth and interlocking directorships, dominate the global agenda (Catephores, 1989: 199-200)

The solution is based on the fact that the financial rewards of executives and privileged workers do not reflect any scarcity of ability in an increasingly well-educated global population. The ransom paid to the privileged, which in the past reflected a premium on restricted educational opportunities is today as outdated in terms of efficiency and necessity as it always was in terms of justice. What is required is a transformation of the way in which production is organised in order to reduce hierarchy and create an environment in which general skills, acquired via enhanced educational opportunity, are combined with sophisticated systems to deliver continual improvement, opportunities for all and reduced inequality. This development, which according to the OECD is a real possibility (1996b 130), would, as emphasised by Sundrum, reduce inequality, curb the power of unions and professionals, widen educational opportunities and remove labour-aristocracies. It also recognises the importance of management as one role among many, albeit a role dependent on management systems and general education. It thus recognises that production is a complex task requiring the organisation of large numbers of people and the precise use of resources. Sourcing supplies, determining priorities, raising credit, procuring tools, controlling costs, setting prices, researching user needs, developing and designing products, marketing them, recruiting, motivating and retaining workers all require management, skill and knowledge (Braverman, 1998: 41). It also recognises, however, that the predictions of both Schumpeter and Lenin have been realised, that the functions that managers perform are continually and routinely being embodied in systems (Morishima and Catephores, 1978: 86). In fact the application of information and communication technologies has progressed to such an extent in the re-engineered, delayered, performance managed companies of 2003 that is no longer really news. Processes are mapped and measured, information is gathered, processed and analysed automatically, creating new knowledge and improving production without human intervention.

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This solution does not deny that it is individuals and individuals alone that act, that "changes in the leadership of business firms, governments, and civic institutions matter" (Pejovich, 1990: 54) it simply stresses that actions are based on rational analysis, on the identification of options and interests. Understanding this point is particularly important given the fact that many organisations in public and private sectors are conservative. There is a constant demand for individuals to deliver change, for leaders, heroes and organisers who can improve the way in which production is organised, produce better products and create better societies. Individuals who must be accountable to us. This means that the founder of a successful business does not need to gain billions of dollars or that a political activist be granted unlimited power. What is required is a balance that provides leaders with sufficient incentive to act while preserving the opportunities for others to compete with them and ensuring that global society shares in the benefits that are produced. In creating institutions that share work, responsibility and reward more equally we must also provide space for the willing and able to transform society and we must establish mechanisms to measure the value of competing approaches.

AUTOMATION AND THE FUTURE OF WORK

The need for this solution is only strengthened by the automation that is transforming the global economy as companies, desperate to lower labour costs transform production replacing expensive workers with cheap, untiring, predictable machines. We live in a world in which automation is transforming both manufacturing and services both mind and body (Rifkin, 1996: 5) as routine skills are codified and automated (OECD, 1996b 15). It is not only in manufacturing that labour is being displaced, in "finance, insurance and other business services" the number of jobs "particularly of the routine kind" are being massively reduced (Freeman and Soete, 1997: 409). Even middle-managers are being dispensed with as automated data collection, processing, analysis and decision-making become the norm (OECD, 1996b: 80). The result is a transformation of "structures and processes" (Rifkin, 1996: 6) that has allowed strategists to analyse and reorganise production in order to shorten processes, reduce duplication, administration and waste (Rifkin, 1996: 6-7) improve quality and efficiency and use less labour (Rifkin, 1996: 102). If these changes were not dramatic enough the power of modern communication technologies means that even when a process cannot be automated it can, as long as it can be communicated, be conducted anywhere (Neef, 1998: 14). As the transfer of IT services from the developed to developing world demonstrates, the meaning of first, second and third world is dissolving as we witness the creation of a global market.

The contradiction that such developments create is monumental. Business requires profits, profits require sales, sales require buyers, buyers require incomes, in a work-based economy incomes require employment, and yet automation is eliminating employment. To put it another way, if restructuring reduces purchasing power, our ability to consume, and with it profits, disappears (OECD, 1996b: 122). The answer to the contradiction from a business perspective is flexibility, the development of new markets, the dismissal of workers with obsolete skills (OECD, 1996b 21). The argument being that flexibility removes obstacles to growth, in other words "low-skill and labour-intensive private services" can "be constrained ... by ... regulatory and other barriers to entrepreneurship" as much "as by labour market rigidities" (OECD, 1996b 23). The solution for business, is to employ those made redundant by automation in labour-intensive jobs that generate profits, in personal services, for example, automation is irrelevant. This means, in order, to ensure the existence of a system based on wage-labour and profits, we are witnessing increased employment in low-skill, labour-intensive services for the many combined with strategic management, design and control for the few.

Despite the fact that we can produce without working, we face a situation in which we are forced to work in leisure, tourism, hospitality, education, health and care (Gill, 1983: 166)(Meszaros, 1995: 583). This is the reality of shrinking manufacturing and agricultural employment, of mechanised and automated factories, offices and farms, of the growing

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service sector devoted to the unproductive and the personal, to sales, promotion and personal service.

The alternative is "the definition of new rights, ... freedoms, ... collective guarantees, ... public facilities and ... norms" that allow us to choose our hours of work and leisure (Gorz, 1999: 51). In a global economy in which labour is no longer central to production and its sale no longer necessary, this process must provide individuals with alternative sources of income and purchasing power (Rifkin, 1996: 205). In order to spread the benefits of automation, it must also, reduce the burden of work, increase leisure and ensure that rising incomes are shared fairly (Rifkin, 1996: 217). It is interesting that the private sector is already embracing the idea of work-life balance and reduced hours to such an extent that the average work week is shortening as flexible operating hours, shorter work weeks and longer holidays are introduced (OECD, 1996b: 154). The advantages in terms of aligning production and demand, in the retention of skilled, experienced and loyal workers, in the avoidance of redundancy costs, in industrial and public relations far outstripping the costs of managing more complex forms of work organisation. Forms of work organisation that are now more manageable due to the reduced cost of establishing and maintaining automated, systems for management, training, recruitment and compliance with regulations.

These developments can be reinforced by state intervention to promote more equitable labour markets by addressing the indirect costs associated with employment in terms of recruitment, selection, taxation, welfare and other overheads. Reforms here must attempt to reduce fixed costs, for where employment costs are fixed, the total cost of each hour worked falls with every additional hour worked creating an incentive to combine long hours with underemployment (Meszaros, 1995: 250)(Rifkin, 1996: 223). There is thus a role for the state in introducing reforms that increase the cost to business of long hours and reduce the benefit for labour. The benefits in a reduction in welfare payments and increased tax revenues (Rifkin, 1996: 229) would be in addition to those gained from a more equal distribution of purchasing power, which in itself would boost growth (Rifkin, 1996: 229). This regardless of the benefits in terms of reduced crime, and improved health and education that are related to employment, not to mention the benefits to individuals and communities of increased disposable time.

Today we have an unprecedented opportunity to create a just global freedom that destroys the causes of conflict rooted in injustice and need and in so doing is defined by its growth. It is an opportunity that despite undoubted complexity in design and implementation is simple, based as it is on global society creating equality of opportunity and the conditions in which ever more effective and efficient production can develop. It is a task that requires not only that each of us enjoy access to education, health-care and law and order (Lal and Myint, 1996: 36) but also investment in research and development and physical capital in the developing world (OECD, 1996b 29) in order to close the gap between rich and poor. If investment in basic infrastructure attracts foreign investment as it has done in the past (OECD, 1996b 77) the goal of just freedom is well within reach for foreign capital generates local purchasing power and local purchasing power attracts investment. There is no reason why the developing world should not produce and export sophisticated goods and services (Lal and Myint, 1996: 331).

The fact that private investment follows public provision also raises the question of why private investment is required at all. Accepting that only international funding can deliver the necessary resources and expertise does not require us to accept that they must be provided from private rather than public sources. The argument that the public sector is incapable of managing production efficiently and effectively due to bureaucratic and political interference (Lal and Myint, 1996: 329-330) must be balanced against evidence of both efficient and effective public service and ineffective, inefficient and profit-seeking private enterprise. It is possible to envisage accountable, innovative and dedicated public service and innovative, responsive and efficient private enterprise. The most reasonable approach is to adopt a simple rule that embraces private initiative when it furthers a just freedom while never hesitating to step in with public provision when private initiative fails to meet the challenge.

The provision of basic infrastructure and the subsequent investment that is required to create freedom in the developing world will introduce an era of global automation that must transform economies based on the sale of labour. Without infinite increase in demand, consumption, production and employment in the services sector a point will be reached at which incomes will be insufficient to consume all that can be produced. The only possible solution is reform of the world of work to share tasks and reduce the link between income and employment. Such a world, in which work, knowledge and investment are shared would be a world in which local production and consumption become a defining feature. A world defined by the sustainable development of a just freedom.

JUSTICE DEFINED

To this point, no definition of justice has been provided, despite continual reference to the idea. The concept of justice used here is closely related to that developed by Rawls in his attempt to provide a practical conception of justice by imagining an initial situation in which individuals placed outside society are tasked with designing just institutions without regard to interests. The value of the approach is to be found in the results regardless of any unease about transferring an abstract method to the real world.

Rawls argues that this exercise leads people to choose two principles, the first that "basic rights and duties" should be assigned equally, the second "that social and economic inequalities" including those of "wealth and authority, are just only if they result in compensating benefits for everyone, and in particular for the least advantaged members of society" (1972: 14-15). If basic rights are designed to provide equality of opportunity, and if Rawls logic is followed, they will be, the practical application becomes clear; "a just social system" should provide "a framework of rights and opportunities ... within ... which ... ends may be equitably pursued" (1972: 15). Specifically this framework would include "the right to vote and to be eligible for public office ... freedom of speech and assembly; liberty of conscience and freedom of thought; freedom of the person along with the right to hold

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(personal) property; and freedom from arbitrary arrest" (Rawls, 1972: 61). To guarantee just access to opportunities the state would ensure equal opportunity in education, in economic activities and in the choice of occupation and a minimum income either by special payments or a graded income supplement (Rawls, 1972). In addition to this basic arrangement the government in recognising that "the family ... lead[s] to unequal chances between individuals" (Rawls, 1972: 285) would direct extra resources to the disadvantaged. It is perhaps reassuring to note the similarity of Sen's view that there are a certain basic set of capabilities that all members of society should be able to enjoy, and his argument that all of us should be provided with sufficient resources to make us capable of certain outcomes (Sen, 1992).

This rights based approach also fits neatly with the pursuit of freedom, not only because of the focus on liberty, but also because of the emphasis on equal rights and compensation rather than equal outcomes, an emphasis that stresses the need to include growth as an integral element of justice. It also fits with separate considerations of the distribution of resources which stress that equality in any one "dimension of life - such as pay, consumption, burden of work, or wealth" leads to unjustified inequality in many others (Letwin, 1983: 35). This simple recognition forces us to accept that equality of outcome is an impossibility and that as such it is equality of opportunity and a framework of rights that is fundamental. As Letwin argues, unique individuals should be treated unequally, with "larger shares for the needy or ... the worthy" (1983: 8). Providing "equal consumption allowances for all ... whether in cash or kind ... grossly contradict[s] the principle of equal sacrifice" (Letwin, 1983: 43). Justice demands "'equality of opportunity' and 'equality before the law'" that "certain rights should be enjoyed by everyone" (Frankel, 1971: 178). It then follows that "nobody may justly be excluded from work which he [or she] could do satisfactorily" (Frankel, 1971: 178). Not only does this conclusion have consequences in terms of discrimination it also has consequences for economic structures. It is not sufficient "that, among all those who may aspire to a given appointment, the one who is best qualified should get it" (Frankel, 1971: 178) on the contrary we need to redesign the economy to use all our abilities to the full. This requires a 'flatter' work-organisation and reduced income inequality combined with the freedom to decide what work to do and when to do it.

The rights based approach thus has clear implications for the distribution of the "social product" and the division between future production, collective needs and private individuals (Marx and Engels, 1979: 84-85). Directing a proportion of the social product to future production provides justification for inequalities of wealth and authority if and only if such inequalities are essential to generate growth and in so doing benefit society as a whole. Likewise the need to provide equal rights or capabilities requires that a certain portion of the product be directed to collective goods and that the distribution to private individuals is in accordance with an organisation of work that uses and rewards our abilities. The most reasonable conclusion would seem to be to question the role of inherited wealth, to reform the world of work to reduce inequality and to guarantee maximum scope for private innovation and growth and equal opportunities for all through the provision of collective services

JUSTICE AND INHERITANCE

This conclusion suggests a closer consideration of inequalities of income and wealth, which can only be justified by our efforts and our efforts alone. As Roemer argues as long as we acquire our wealth fairly through hard work, skill, saving, supply of tools, entrepreneurship or management our incomes are just (Roemer, 1988: 20). On the other hand, whenever wealth and income are unfairly acquired due to discrimination, work-organisation, inheritance or luck any income arising is also unjust. This leads Roemer to claim that the "inheritance of land, talents, financial, genetic or social; or indeed being born in the USA rather than Calcutta is not just and that measures should be taken to address this issue (1988: 4).

The inheritance of wealth earned justly by another is doubly unjust firstly because it is unearned by the recipient and secondly "because inheritance nullifies equality of opportunity

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for the new generation" (Roemer, 1988: 173). The recognition that attempting to address this issue would cause practical problems in discouraging saving (Roemer, 1988: 67-68) only reinforces the need for careful and pragmatic institutional design which could, for instance, encourage charitable giving rather than impose inheritance taxes that the rich are adept at avoiding. Neither is there any reason not to address the inherited privilege of whole regions that led, as both Hayek and Lenin noted, to an English working class that benefited from the capital purchased with the proceeds of the exploitation of foreign labourers (Hayek, 1944: 104).

The strength of these arguments resides in their ability to explain our rejection of the huge divide between billionaires and starving children as inherently unjust. Even when huge wealth has been amassed by an individual in their own lifetime our first thought is to question whether it truly reflects their contribution to society and our second is whether they would have made a comparable contribution for less. The arguments of Rawls and others demonstrate that there is no need to create institutions that deliver such huge reward to a few and so little to so many. All that is required is that institutions offer sufficient incentives and support to allow and encourage the drive, ambition and effort necessary to transform the gifts of natural ability to benefit individual and society alike. Institutions should, in short, encourage us as individuals to act in ways "which further socially desirable ends" (Rawls, 1972: 57). The result being that "those who have been favored by nature, whoever they are, may gain from their good fortune only on terms that improve the situation of those who have lost out." (Rawls, 1972: 92). It would be for the state to create and maintain the democratic mechanisms required to ensure that "the rewards appropriate to differentials in ability, effort, and luck" were established "by practical dialogue among the citizenry." (1990: 166-167). The state would also need to monitor the ability of the institutional mix to generate growth, provide collective services and distribute resources fairly, a role that would require it to keep "markets competitive" and "resources fully employed" (Rawls, 1972: 83). The mix of regulation and competition is striking, a mix that stresses the role of the state in consciously creating institutions. It is a role that forces us to accept the creation of a just global freedom as a matter of practice rather than theory. It is also a role that can and must be judged not in terms of absolute standards of efficiency or justice but in relative terms. Any institutional mix is not just, effective or efficient it is more or less just, effective or efficient than any other, a fact that demands careful measurement, that must provide a central element of the direct democracy that is a defining feature of a just global freedom.

OPPORTUNITY, INCOME AND COLLECTIVE INHERITANCE

The question of inheritance, genetic, financial, or otherwise, also forces us to consider the value of a global citizens income that could be considered as a return to individuals with respect to their share in the world's natural resources and the inheritance of ideas, technologies and tools from our ancestors (Frankman, 1997). It would provide billions in the developing world with immediate purchasing power, increasing demand for local products, fuelling growth, dampening extremism and reducing conflict. In the developed and developing world alike it would allow automation to free us from work. In both cases global citizenship would be enshrined in a "world-wide system of entitlement to services and income" (Frankman 1997). A system that would be compatible with the the liberty of individuals to enjoy private property (Ryan, 1987: 125)

The problem with this system is that citizens incomes and collective services, like all public expenditure, require taxation and because taxation reduces freedom it is eagerly avoided. Despite the theoretical justification provided by Rawls for rich compensating poor this fact creates practical problems in terms of tax avoidance and tax competition. This leads Cockshott and Cottrell to argue that the priority should be economic reform to reduce unjust income inequality. The argument being that if the distribution of incomes is just a set tax demanding an equal contribution from all in return for collective goods is just. Individual freedom would be enhanced by a right to choose working-hours in the knowledge that long hours and extra income would be tax-free (1993: 114). The challenge of creating a just organisation of work, a just distribution of income and the right to choose our hours of work

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is, however, perhaps even greater than that of introducing a citizens income based on taxation and those income supplements that are common across the globe. The contribution does, however, highlight the need for a citizens income to be unambiguously linked to cost of living and the wider economic environment in such a way that it encourages all to contribute to society and economy. It also highlights the need to ensure that all public expenditure is as effective and efficient as possible in order to minimise the impact on freedom of taxation. This applies equally to those public goods that are best delivered by a single provider and yet are not part of collective provision.

The challenge is to do this while resisting the pressure to replace public funding with commercial services applied by those who pay for both public services through taxation and private services on the market (Giddens, 1984: 315-316). Pressure, which if it were successful, would undermine collective provision of health, education and transport and impact directly on economic growth. The issue is not one of organisation or private versus public provision because public funding does not exclude either delivery by private companies or any form of work organisation. The sole issues are access, equality of opportunity and democratic accountability all of which are denied to those who cannot afford commercial services, This does not imply that publicly funded services, free at the point of use, should not be open to competition. Competition can promote choice and innovation and deliver more efficient and effective production and yet there are situations in which competition is impractical or damaging. The only answer is to adopt a pragmatic approach in pursuit of clearly defined goals.

JUSTICE AND DEMOCRACY

A just freedom also demands a global democracy, constrained by equality of opportunity and individual liberty, that embeds decision-making within debates that are open to all and are based on fact and the force of the better argument rather than on prejudice and coercion (Spragens, 1990)(Habermas,1992). Such a democracy requires not only that relevant and reliable information be available and accessible on a global basis but also that there is global access to the education needed to understand and use it and that mechanisms of democratic decision exist (Stoker, 1995: 12). Information and communication technologies mean that more and more reliable information is becoming available creating the potential for ever greater involvement (Marsh and Stoker, 1995: 295). While this potential is being exploited and explored much remains to be done to make a global democracy a reality.

Not only is this democratic framework an essential method of addressing issues of collective concern it is also essential in promoting tolerance and respect. As Spragens argues it is simply "not possible to speak with other people in a common search for the truth without conceding and manifesting their moral equality with you." (Spragens, 1990: 165). Democratic debate that recognises the rights of the individual tends to reduce prejudice and combat stereotypes which in turn promotes just and reasonable decisions. There are sufficient global, national and local institutions to deliver via direct democracy the framework of rights and goods that all individuals should be entitled to. Institutions which could in the same way produce the international rules that govern trade, intellectual property, security and other areas of life. There already exists substantial experience of democratic agenda setting, provision of contextual information, organisation of debate and the conduct of direct decision-making. The development of new technology only creates extended opportunities for debate and decision to replace force.

JUSTICE, FREEDOM AND GROWTH

This democratic framework must be used to deliver the economic measures that are necessary to create a just global freedom, to deliver the massive investment in the developing world that is needed to feed, clothe and shelter people living in extreme poverty. This democratic framework must be used to redirect the hundreds of billions of dollars spent on the military each year to the provision of basic goods, basic incomes, housing, sanitation, transport, power, communications, health and education. Goods that should not be created at the expense of competition, or the exclusion of local producers, instead, wherever

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possible, competition should be created and created in such a way that it combines local production with the transfer of skills, knowledge and technology. If globalisation is to free those in the developing world, it is essential that the barriers to trade that exist in the developed world are dismantled, providing access to markets and ensuring that competition from imports promotes choice and efficiency (Nove, 1991: 243). Investment can create growth in the developing world, it can transfer technology and knowledge, and generate create employment and purchasing power., that in turn attracts investment. The greater the private and public finance, whether from reform of agricultural subsidy, direct taxation, private sector investment or charitable giving, the more rapid the progress to a just global freedom.

If the political will is present it is possible to feed, clothe, and shelter every member of the human race. Schools, hospitals, roads, sanitation, housing, communications, power can all be produced in short periods of time if the decision is made. Unfortunately it will take longer to address the scarcity of educated labour, to provide the teachers, nurses, doctors and other professionals required to provide those services taken for-granted in the developed world. Even here, however, a concentration on providing basic education, enabling all to develop the literacy, numeracy and rationality that allows access to a world of knowledge can be expected to deliver rapid results. Our capacity to understand creates the potential for distance learning and global stocks of knowledge to be used to profound effect but only if it is accessible. Thus there must, in addition to basic education, be a focus on reform of those IPRs that prevent those in need from producing the freedom that the developed world takes for granted.

The focus on basic education should also lead to a generation of parents that are able to provide their children with the support they need to develop the behaviour that will allow them to realise their potential in education, health and society. Neither are these priorities for the developing world alone, the benefits of basic education, sound parenting, distance learning, access to information and IPR reform are as relevant to the developed as the developing world. They are also priorities that set the context for a university sector that is simultaneously the first rung on the ladder to executive employment for a minuscule minority, the source of ground-breaking research and innovation and the place of education for graduates whose supply exceeds demand. There is no reason why this situation need continue. Ground-breaking research can, is and has been conducted in institutions that do not educate. Courses can, are and have been delivered by those who are not engaged in ground-breaking research. Executive employment for a minuscule minority is unjust and unnecessary. One solution is to separate research from education and to flatten the structures that create the executive. It is solution that requires public sector research to be funded explicitly and the knowledge it generates to be distributed to those who can use it rather than being exploited by private sector monopolists. These are reforms that would provide immense benefit for developed and developing world alike.

JUSTICE, AUTOMATION AND FREEDOM

Global society must also address the fact that automation and increasing productivity are eliminating the need to work in a world in which consumption and employment continue to grow, robbing us of the free-time that the advance of science has made possible. This in a global economy in which automated and subsistence production exist side by side because of a gulf in machinery, energy and technology used in production (Strange, 1988: 75). It is a gulf with profound consequences, even for skilled workers whose incomes are related not to their own productivity but to the low productivity of alternative occupations (Nove, 1991: 146). To paraphrase Joan Robinson, better to be exploited than not exploited at all, and better still to be exploited in an economy in which high productivity is the result of sustained investment (Strange, 1988: 81). If, however, investment in the developing world were to increase productivity the challenge posed by automation would only be more acute. The solution to the challenge of automation, must not, however, be solved by the expansion of a service sector that in retailing, promotion and other unproductive areas contributes little of value. On the contrary, the reduction of work necessary to create freedom must extend to these areas, and yet, without other sources of income to compensate for lost employment, the uneven

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reduction of hours worked would be combined with hardship. Reforms must prevent this from happening, one option being that each of us receive a global citizens income, related to the local cost of living, that would reflect our inherited share of the automated machinery that produces the goods we consume. This global citizens income should also act as a catalyst for a more equitable distribution of the work which remains to be done, and the income received in exchange for it, although it is unlikely that it alone would be sufficient.

The nature of automation and the structure of the economy would also suggest the introduction of both a right to opt for reduced hours of work, and a right to work, both of which could be supported by information systems that indicated the demand for specific skills and knowledge. Such reforms could and should create a new equality of opportunity that allows the emergence of an improved balance between work and life, parenthood and employment, for men and women alike (Joshi, 1986: 264-265). Nothing is inevitable, it is up to us to choose the future we want. Automation could lead to reduced employment, or, dependent on purchasing power, to increased consumption, or to a reduction in hours worked rather than jobs, or indeed, to full-employment, increased consumption and more free-time, or to full-employment, increased free-time, and sustainable consumption (Castells, 1998: 256).

JUSTICE, FREEDOM, COMPETITION AND CHOICE

The reforms we choose for the world of work must also be compatible with the preservation of competition. Regulation must be both effective and efficient, and above all applied equally, with compliance facilitated by the provision of automated information systems that collect, process and store information. The centrality of competition in terms of choice, innovation and freedom, being so fundamental, that such principles must not be abandoned for reasons of expediency, and yet neither must they become dogma. If competition is impractical, as it is, for example, in rural or remote areas, only direct, open and transparent democracy can deliver choice, innovation and freedom. It may also fall to the democratic state to guarantee the provision of product information systems that allow rapid comparison of cost, quality, environmental impact, labour-standards and any other relevant factors. The provision of this information empowering us, enabling us to choose consumption patterns that protect the environment, increase individual freedom, and support international development.

It will also fall to the democratic state to deliver the reforms of intellectual property rights that are required to adapt them to a world in which the ease of reproduction and the dominance of information and communication technologies has transformed them. New rules are required to reform the private sector IPR monopolies, to redraw the balance between science, ownership and exploitation, of drugs, genomics, of knowledge, and music, film, sport and performance. The new regime must increase the free exploitation of knowledge, reduce the price to the consumer and reward producers for their efforts.

JUSTICE AND SUSTAINABILITY

Unfortunately even with reforms in these areas individual decisions alone are unlikely to deliver the degree of change that is required to create a just freedom that is compatible with sustainable growth. Neither must this mean that we must consume less, innovation may reduce the impact of our consumption. Without, however, at least regulation to ensure that the costs of our consumption are reflected in the prices we pay there is little prospect that the result of billions of individual decisions will ensure that growth is sustainable. It is probable that global society will need to consciously choose to develop sustainable technologies, to plan and produce sustainable transport systems integrated with the location of services. It must create the infrastructure, legal and physical, required to allow remote working, to provide affordable, sustainable housing, and ensure quality of life, in terms of crime and pollution. Local production and consumption, remote working, regulation of housing, regeneration to reuse unused and unpopular properties, improved services, reduced crime, all could and should be goals of the democratic state that are beyond the grasp of individual citizens.

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Growth that is sustainable in environmental terms is, however, only one part of the equation. If growth and freedom are to be sustained against the threat of conflict it is essential that we create a just global freedom regardless of our obligation to pursue justice as an end in itself, for justice is both means and end in the pursuit of freedom. Justice demands that global society creates a global equality of opportunity based upon access to basic infrastructure, it demands democratic institutions, local employment and access to technology and knowledge, it demands access to a clean environment and quality services. Global security can only be created as a result of global justice and global freedom can only grow in the soil of a just world.

JUSTICE, STATISTICS AND ACCOUNTABILITY

The ability to judge progress towards freedom and justice, and the value of reforms in contributing to these goals, clearly requires open access to unambiguous and detailed data that would enable us to consider our own position and progress on a global scale. Data on incomes, hours of work and cost of living, would together illustrate the resources at our disposal and establish the context in which the choice between work and leisure is made. Data on civil, political, economic and human rights would describe our freedom to pursue our own designs for life. And, finally, data on access to basic goods, such as a clean, crime-free environment, education, and health and social care services, would describe the opportunities open to us.

The logic is uncontroversial, up to a point, that point being the importance of equality. Equality of outcome is not the goal of a just freedom. Incomes, hours of work, cost of living, occupations, localities, all differ, and must differ, but justice also demands that income is just, that inequality reflects effort, or hardship, or outstanding contribution. Data creates the opportunity for the rational exploration and discussion of our world, whether in terms of the justice of income distribution, or the factors that impact most forcefully on cost of living, or access to basic goods, or educational attainment, or mortality.

The importance of access to basic goods cannot be overstated, and for some such as the quality of the environment or the prevalence of crime the case is simple, results matter. For others it is more complex, for in areas such as education and health-care it can be argued that it is opportunity rather than result that matters. There are, however, at least two important points to consider, one, do the results matter for society, and, two, do results tell us, as citizens, about the performance of the service. The case for education is compelling, it is not enrolment that matters to society, it is results, for learning, not only benefits the individual, it also benefits society, improving economic performance, developing citizens, and reducing crime and ill-health. Not that education is the only factor that influences learning, parenting, deprivation, environment, all feature, and not that we cannot inspect and judge the performance of educator. The point being, simply, that if we are to improve attainment, and that must be a goal in terms of a just freedom, we need to act on those factors that impact on attainment most forcefully if the provision of education is to deliver the results we desire. This argument being as relevant for education as it is for crime, environment, income or health. There is, however, another argument that applies to health, illness, and health-care, for although ill-health impacts on society, it is in part determined by choice, as well as DNA, environment, and health-care. Smoking, drinking, insufficient exercise and diet all contribute to death and disease, regardless of the excellence or access to health-care. In terms of a just freedom it is access to, and the quality of health-services, affordable and safe food, and leisure, that matters, and not the results in terms of premature death or ill-health.

The importance of these points is threefold. One, to measure the progress to just freedom we must focus on a limited set of statistics, income, hours of work, cost-of-living, rights, crime, environment, learning, and access to and quality in health-care. Two, that we can and must consider the relationship between factors, that, for example, education and surveillance reduce crime. Three, that it must be done on a scale that is relevant to us and that allows meaningful comparison. The power of modern, information and communications technology, makes all of this possible, already there are web-sites that provide incredible detail, for all of

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the main areas described above, for very small populations. It is a simple task to extend them, providing a route to the understanding of freedom and justice and more than that to local consideration of issues within a structure of regional and international democracy that must direct resources to need.

We are at the dawn of an age of information that will take us far beyond measures such as Gross National Product (GNP) that record expenditure on such unproductive things as defence, law and order and pollution control while ignoring the contribution of voluntary and domestic work. We are about to transcend even those measures that focus on results such as The Genuine Progress Indicator, the Index of Sustainable Economic Welfare, the Human Development Indicators and the UN Millennium Development Goals, that either create almost incomprehensible index numbers or provide data at a level that undermines local action. We are entering an age of local data that can and must underpin global democracy in the quest for a just global freedom. Data that must be used in evidence based decision-making at global, national and local levels.

As individuals, we have an interest in, and right to, increase our freedom, as members of a global society, an interest in and duty to create a just global freedom that can only be based on equality of opportunity rather than equality of outcome. The creation of this global equality of opportunity demands massive investment, in education, housing, sanitation, health and communications, and not only in the developing world. Investment that can be created by cuts in military spending and agricultural subsidy and the deliberate introduction of an institutional framework that promotes trade, stability, and growth. It is time for social, political and economic innovation to realise the potential for a just freedom that science has created. The opportunity for a state or group of states to act is real, the benefits that they would receive in return for the provision of education, training, technology, and investment, being far in excess of those generated by military spending, trade barriers, and subsidy. Even if this opportunity is ignored, we can, as individuals, transform our lives, to a greater or lesser degree our consumption is our decision, our work is our decision, our life-style, diet, exercise, transport, homes. We can spend less, consume less, work less and live more.

To create a just global freedom we need a potent combination of investment, institutions and innovation. We need to provide help, guidance and sometimes intervention to ensure that parents raise responsible citizens, and nursery, primary, and secondary education for all, to allow all the opportunity to realise their potential. We must ensure that this learning continues to be available to all, through a range of institutions, not least open learning, at no cost, that guarantees access to courses and resources, through libraries, the internet, and local learning centres. The knowledge that these resources provide, must be continually updated in accordance with the insights produced by state funded research and development and state procurement that advances knowledge, provides a stock of concepts ripe for exploitation by any and all who can use them, and guarantees demand for innovation. Not only will these measures promote the transfer of knowledge and technology and local production and consumption, they will also act to transform the world of work and the nature of competition. Better educated citizens, better able to contribute to production can be expected to demand the world of work they deserve, in which structures are flattened, income differentials are reduced and responsibility is shared. A just global freedom demands that earned income is a just reflection of ability, effort, performance, risk, and supply and demand, it demands a massive reduction in income inequality.

It is essential, however, that the world of work that is created is compatible with competition. The process of creating an enterprise, of securing finance, premises, labour, and so on, should be simplified, supported and automated to the point of routine, with the state providing assistance at every stage. Systems must be created that deliver a regulated and supportive environment, combining the needs of consumers and citizens for information about product and producer, with those of the enterprise to concentrate on production. Such a system should operate in a context of free-trade, allowing the enterprise, public or private, free rein to seek competitive advantage from a global stock of knowledge which must include a wealth of information that could be used to create products that cater for each and every one of us. This stock of knowledge must be enhanced by reform of IPR to reduce the cost and increase the pace of technology and knowledge transfer while providing sufficient incentives for those who generate products, concepts and services.

To these fundamental changes, must be added improvements in regulation and service provision to promote clean energy, such as wind-power, to guarantee accessible services, routine health screening and checks, local advice and treatment. There must be moves to improve public transport systems, provide planned affordable homes and community efforts to deliver safe streets for young and old alike, but above all to improve democracy. A simple indicator framework, accessible to all through newsletters and in greater depth on the internet creates the opportunity for real accountability, with priorities, national, local and international set by us. This innovation would provide all of us with a quick and easy means

JUST FREEDOM - 36 OF 41

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of judging institutions, people, and progress in terms of those things that are central to a just
freedom, time, resources, opportunities and rights. Statistics, from official returns and private
data warehouses, on income inequality, hours worked, premature mortality, educational
attainment, cost of living, income per hour, crime, the environment, rights and opportunities,
would provide us with all the information we need to debate and decide.

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