Enterprise-based HIV/AIDS strategies: Integration through organisational architecture

G.J. Lee*, R. Venter and B. Bates
School of Economic and Business Sciences, University of the Witwatersrand,
Private Bag 3, Wits 2050, Republic of South Africa
leeg@sebs.wits.ac.za

The management of the HIV/AIDS pandemic has clearly become a core strategic issue for many organisations, especially in the developing world. However the policies and practices of an HIV/AIDS programme are often less than integrated and strategic in nature, with organisations frequently subscribing to discrete and isolated interventions in imitation of others, or at best instituting a stand-alone policy. One management tool that may serve to help in drawing together and focusing efforts in this regard is an organisational architecture. Organisational architecture has been suggested as an holistic management tool for the delivery of organisational strategies. This article accordingly reviews varied literature on organisational architectures, and then shows how various HIV/AIDS policies and practices might fit into such an architecture. Organisational architecture could be used effectively to organise, integrate and focus the information and efforts connected to the policies and practices surrounding a corporate HIV/AIDS effort.

*To whom all correspondence should be addressed.

Introduction

HIV/AIDS poses a potentially serious threat to organisations. It is currently estimated that some 40 million individuals are infected globally (UNAIDS. Joint United Nations Program, 2002). In the highest prevalence areas, eighty percent of forecasted deaths in the economically active group (entrants to forty-nine years old) are now being attributed to the pandemic (Barnett & Whiteside, 2002). Developing countries, which are most labour intensive, are the hardest hit.

Increased AIDS prevalence is expected to result in significant costs to organisations (Booysen & Molelekoa, 2002). Health care and other benefit costs are expected to rise, while indirect costs might include declining productivity, increased absenteeism and turnover, loss of morale, tacit knowledge and cultural cohesion, cost of employee replacement and a shrinking labour pool and skills base (Aventin & Huard, 1999: 363-375; Barnett & Whiteside, 2002). Many of these costs do not only occur among the infected. The workplace contributions of healthy employees may also suffer due to HIV/AIDS-related needs such as caring for sick family members, compassionate leave for funerals etc. Finally, many firms (e.g. life or medical insurance) may find that profits are affected by prevalence in their customer base (Stone, 1994: 52-64).

There is remarkably little published work, especially of an academic nature, dealing with organisational responses to HIV/AIDS. The scant material that does exist suggests that responses have tended to exist on three levels. First, many organisations ignored the situation, especially in the first decade or so of awareness (Kohl, Miller & Pohl, 1991: 116-120; Aventin & Huard, 1999: 363-375; Stone, 1994: 52-64). Second, some began to institute particular practices, notably education and training or non-discriminatory policies (Tuten, Gray, Glascoff, 2000: 30-40). However, such responses tend to be composed of a 'shopping list' of somewhat disconnected interventions, which are often not integrated adequately with each other or the organisation. Finally, increasing emphasis has been placed upon the importance of an overall HIV/AIDS policy (Gopalan & Summers, 1994: 15-34; McLean & Moore, 1997: 22-28). However, such policies are all too often detached from the everyday operations and strategy of the organisation. A truly integrated and strategic response to the HIV/AIDS issue would require not only a policy and practices, but also systematic linkages to the core areas of the organisation.

A new approach is needed to instil strategic and integrative integrity into HIV/AIDS policies and programmes. One such approach may be the use of so-called 'organisational architecture'. This strategic management tool provides exactly the kind of organised yet flexible base that specific interventions such as HIV/AIDS desperately require. Accordingly, this article will first review the literature on such architectures, and then discuss generally their potential application to HIV/AIDS in organisations.

Organisational architectures: Theory and practice

Over the past decade the concept of 'organisational architecture' (also known as enterprise, business or work architecture) has been given increasing credence in both management practice and literature. The concept will be

explicated here in general, before being applied directly to HIV/AIDS policies and practices.

An enterprise architecture is essentially a management tool. It is used to describe the workings of an organisation. In much the same way that an architect can describe a whole building using a blueprint or drawing, an organisational architecture is a document that provides an holistic outline of the (largely invisible) workings of the organisation.

Some definitions may help to set the stage. Various authors define organisational architecture as follows:

- Ulrich: '…the underlying model of the company's way of doing business' (Ulrich, 1998: 124-134).

- Veasey: '…a model of the enterprise that can be shared by everyone involved in managing change' (Veasey, 2001: 420-436).

- Nadler: 'When we say 'organization' we mean all of the various systems, structures, management processes, technologies, strategies, etc., that make up the 'modus operandi' of the firm' (Nadler, 1992: 1-38).

- Wolfenden and Welch: '…a holistic, future-facing, logical blueprint [that] needs to interpret business strategy and provide a focus on customer value while concurrently identifying the work activities, roles and competencies, business rules and processes necessary to build and operate the business' (Wolfenden & Welch, 2000: 97-106).

We would define enterprise architecture as:

> 'A collectively agreed and communicated document that, in light of the strategic competencies needed to fulfil stakeholder needs, defines and details the major building blocks of the enterprise'.

The following important points can be noted from these definitions:

1. If it is to be useful, the enterprise architecture should be an explicitly stated document. Every organisation (or part thereof) that conducts activities by definition has an implicit, underlying architecture. However not everyone necessarily understands or agrees on this unstated architecture, leading to potential lack of co-ordination. Clear enunciation is required. The codification of an organisational architecture need not lead to inflexibility – modern practice allows for, in fact demands, substantial dynamism stemming from strategic and operational change.

2. Enterprise architectures exist largely to support strategy and facilitate change. Specifically, they 'provide coherence to the *expression* and *implementation* of strategy' (Veasey, 2001: 420-436). They largely aid in one of the most difficult of all strategic tasks, namely communication. When an organisation or part of an organisation has a document that spells out how it does business, it becomes far easier to formulate strategy, conceptualise change and communicate that change to the stakeholders. It also becomes far easier to monitor change in a mature and holistic way.

3. The focus of organisational strategy is generally the satisfaction of stakeholder needs through the delivery of organisational capabilities. Thus these two elements (stakeholders and capabilities) are sometimes included as primary elements in the architecture document (Veasey, 2001: 420-436; Wolfenden & Welch, 2000: 97-106).

4. The content of an enterprise architecture is generally composed of various layers of complexity. First, the broad building blocks of the business are defined. Often, these will be roughly the same for most organisations (as will be seen in the illustrations below). Thus, one almost inevitably finds processes, structure, culture / people and various others as core dimensions of the architecture. However *within* these broad delineations the idiosyncratic workings of the specific business at hand are then sketched out in increasing depth. For example two businesses, one retailing and the other manufacturing, might both cite processes as one of their architectural pillars. However, when further defined for that particular business, one will find substantially different processes belonging to each, that need to be specified. In fact, two manufacturing businesses will probably have different processes, even if they produce the same product. This operational diversity is the very heart of competitive advantage. Certainly, no two organisations will have the same cultures. Thus, once the particular workings of the organisation have been defined, each architecture is as unique as a fingerprint.

5. In order for the strategic benefits to arise, an enterprise architecture should be collectively agreed upon and communicated. This does not mean that everyone should be involved in drawing up every detail of the plan, just as too many people cannot have input into an architect's blueprints. However, if many people cannot either understand or agree upon the details of the enterprise architecture, then it means one of two things: either the architecture is wrong (i.e. it does not truly reflect the reality of the business) or there is lack of co-ordination within the work practices in the firm (i.e. people are working at cross-purposes). Neither of these is desirable, therefore effort should be expended in communicating and at least getting feedback on the document (and preferably complete agreement).

Having defined and somewhat set the stage for an understanding of enterprise architectures, it would be most helpful to give some prominent illustrations.

Some examples of organisational architectures

This section will only examine some 'first-level' enterprise architectures, i.e. the generic, basic frameworks that might be used to begin profiling an organisation.

Ulrich's example (Ulrich, 1998: 124-134)

Ulrich gave an example of an architecture, along with an evaluation framework, which includes:

Table 1: Ulrich's (1998) organisational architecture example

Architecture dimension	Question	Rating (1-10)	Description of best practice	Gap between current practice and best practice
Shared mindset	To what extent does our company have the right culture to reach its goals?			
Competence	To what extent does our company have the required knowledge, skills, and abilities?			
Consequence	To what extent does our company have the appropriate measures, rewards and incentives?			
Governance	To what extent does our company have the right organizational structure, communications systems, and policies?			
Capacity for change	To what extent does our company have the ability to improve work processes, to change, and to learn?			
Leadership	To what extent does our company have the leadership to achieve its goals?			

In this architecture, Ulrich is essentially saying that 'if you can get your shared mindsets, competence, consequence, governance, capacity for change, and leadership right, you can implement any strategy successfully'.

Ulrich uses alternate terms for processes, structure, culture etc. As will be seen below, however, his architecture is fairly similar to various others, both from academic and practitioner sources.

The McKinsey 7-S, Accenture and Jay Galbraith Star frameworks

Several long-standing consulting frameworks are often mentioned in literature. These include the McKinsey 7-S framework (Dutta & Manzoni, 1999; Pascale & Athos, 1981), an Accenture Business Integration Model (Dutta & Manzoni, 1999), and the Jay Galbraith Star Framework (Ulrich, 1998: 124-134).

These frameworks use quite similar architectural elements, with differences largely existing in the delineations. Table 2 below shows the first-levels elements of these three examples:

Table 2: Consultancy examples of organisational architectures

	McKinsey 7-S	(An) Accenture Model	Jay Galbraith
Architecture elements	Strategy Style Skills Shared Values Structure Systems Staff	Strategy People Business processes Technology	Strategy Structure Rewards Processes People

These are only three of many management consulting examples.

Dutta and Manzoni (1999)

Dutta and Manzoni suggest perhaps the most parsimonious model of all, relying only on the areas of culture and people, processes, structure and systems, and technology. Again, this framework is very similar to the aforementioned

Veasey's Axum framework (Veasey, 2001: 420-436)

Veasey suggests an architectural framework composed of processes, organisation, technology, competencies and culture. He also includes stakeholders and capabilities as primary inputs, which is an important step.

His 'Axum' framework is also a consultancy tool, however Veasey presents it as an academic article, and includes several useful additions, including enterprise architecture for diversified organisations and the second-level process architecture. Although it is clearly similar to its predecessors (see above), the presentation of the framework is academically attempted, and probably the most lucid and complete example of its kind.

Wolfenden and Welch (2000:97-106)

Somewhat contrasting the above, Wolfenden and Welch suggest a more sequential and customer-focused 'business architecture'. It includes as inputs the business strategy of the firm, and then goes on to consider (in sequence) the following:

- '*Customer segmentation*' – clustering customers by similarity in desired value (with a predominant focus on external customers),

- '*Customer life-cycle interaction*' – for each customer segment, identifying the total cycle of value-adding outcomes (from the customer's point of view) that they should experience with the organisation,

- '*Activities*' – as a prelude to process analysis, the total set of activities comprising a life-cycle interaction are defined,

- '*Roles*' – all the competences needed to complete the activities are defined, and grouped into roles,

- '*Coordination activity*' – specifying a managerial role for the overall co-ordination (planning, control and review) of a life-cycle interaction,

- '*Business rules*' – the cultural underpinnings that determine how activities are done,

- '*Business processes*' – only now do the authors suggest that activities and roles are grouped and sequenced into processes.

Finally, a '*business diagnostic*' is done to compare the current practice against the newly defined desired architecture, and a prioritised *implementation plan* instituted to close the major gaps in practice.

The above enterprise architectures are only some of the many available in management literature. It is probably true to say that the area is still not very rigorous in terms of academic critique, particularly due to a paucity of empirical research and formal theory building. Most of the contributions, even in peer-reviewed journals, are made by leading consultants. The academic and empirical contribution to date has been relatively small, although not lacking in profile. This is surprising given the long-standing use of such frameworks in the 'real world'.

Notwithstanding these limitations, growing interest in the area is probably justified. Enterprise architecture is a natural complement to strategic management, providing in a framework what many leading strategic theorists suggest is needed. It's constituent parts are composed of many individual areas of very well established academic research, such as stakeholder theory, culture, organisational structure, process management and technology. It has a certain positive reality, given the increasing use in business. Finally, it appears to have normative utility in precisely the areas that specific strategic interventions, such as HIV/AIDS, require.

Accordingly, the following section will propose areas where organisational HIV/AIDS policies and practices may 'fit into' an enterprise architecture. This will hopefully illustrate how useful this approach may prove to be to the overall management of the pandemic in the organisational context. We will use an enterprise architecture developed by the authors, as seen in Figure 1.
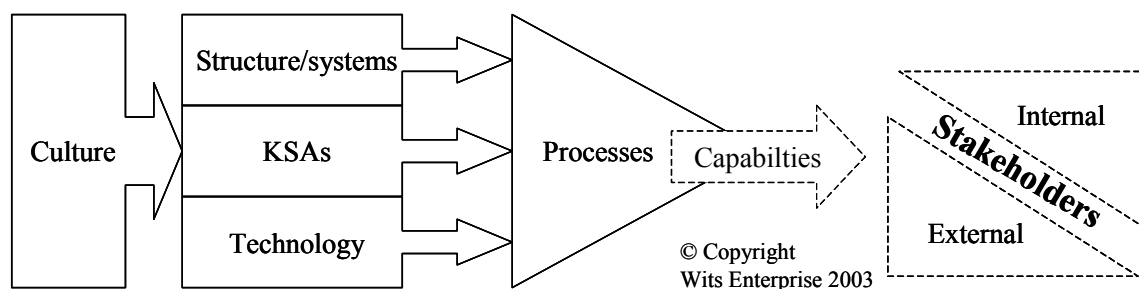
Figure 1: Reading from the right: In this architecture, capabilities are delivered to stakeholders through processes. Processes are enabled by structure and systems, KSAs (knowledge, skills and abilities) and technology. Finally, culture underlies all other elements

Integrating HIV/AIDS into an organisational architecture

As discussed earlier, the application of HIV/AIDS policies and programmes in organisations often lacks strategic integrity. Lack of communication or integration with the mainstream areas of the business are common problems, where interventions exist at all. It has been suggested that the use of enterprise architectures may possibly help in this regard.
We shall therefore illustrate how the use of enterprise architecture might help both to organise the elements of an HIV/AIDS effort and integrate these with the 'mainstream' areas of the business. Two tasks are therefore required in this regard:

1. To state the idiosyncratic elements of an HIV/AIDS strategy that need to be incorporated into the architecture, and

2. To state how these affect and interact with the established elements of the architecture.

As has already been mentioned, very little academic literature exists on organisational responses to HIV/AIDS. Accordingly, many of the individual policies and practices included in the architecture have been drawn from published case studies on the practices of multiple companies (Global Business Coalition on HIV/AIDS, 2002; Henwood & Innes, 2002: 14-29) For reasons of space, the above sources are generally cited where readers may seek examples, instead of individual organisational cases being reported. As per usual practice, the elements of the architecture are explicated in reverse, starting (see Figure 1) with a stakeholder analysis.

Stakeholder analysis

The first step in the architecture is to define the stakeholders in the organisation's HIV/AIDS efforts, and decide the contexts in which they will be either primary or secondary stakeholders. The latter point is vital, as will be seen below.

Generally, the broad stakeholders in an HIV/AIDS context will be substantially similar to those in the general organisational context. However a certain amount of segmentation and redefinition will almost certainly be required to take into account the specific issues brought about by the disease.

For example, employees clearly form one of the most important stakeholder groups, and can almost inevitably be regarded as primary stakeholders in an HIV/AIDS strategy. However segmentation may be required to identify sub-groups that may have specific and different needs in the HIV/AIDS context. For example, there are those *infected* with HIV/AIDS. Secondly, there are those *affected* in different ways and to different degrees (e.g. those with family members, colleagues, friends etc. who are infected) (Barnett & Whilteside, 2002). Furthermore, among both unaffected and affected individuals, high- and low-risk groups can be identified. The manner in which employees are affected or at risk, may determine their needs, and the organisational response, as will be seen below under 'capabilities'. It is possible that organisations will choose to designate some groups primary stakeholders and others as secondary, allocating resources accordingly.

The importance of this distinction is also highlighted when we consider employees' dependents. It may be necessary to grapple with the extent to which the organisation is responsible for, and how to deal with, infected dependents. Some organisations choose to include this group as a stakeholder (Henwood & Innes, 2002: 14-29). If dependents are chosen as primary stakeholders, then the organisational response needs to be significantly different when interventions are determined than if they are seen as secondary stakeholders.

Secondly, shareholders may be an important stakeholder group. Many organisations would want to ensure that any policy or programme implemented be to the advantage of shareholders and therefore require specific competencies to be delivered in order to reassure them of this (see below).

Customers / clients may also be an important stakeholder (Barnett & Whiteside, 2002). Again, depending on their operations, firms may choose to designate customers as primary or secondary stakeholders. Firms whose operational processes are directly and significantly affected by HIV/AIDS (e.g. hospitals, medical aid or financial services companies) may fall into the former category, and therefore choose to expend time and energy strategizing around how to adapt their product offerings. Other firms would not be so affected, and customers could fall into secondary stakeholders (or perhaps not at all).

Of course, organisations whose supply chain is affected by the pandemic may need to include this in their analysis. For example, the supply of raw materials from highly infected areas may become erratic due to the disease, which would possibly require alternatives or flexibility on strategy.

Many firms choose to make their broader community a stakeholder in the HIV/AIDS fight. The likely response of the firm is through the corporate social investment budget. Firms may choose to fund non-governmental organisations that deal with HIV/AIDS, or even get directly involved (Gopalan & Summers, 1994: 15-34) e.g. by making their VCT facilities available to non-organisational members.

One final example of a stakeholder might be government. In certain countries, authorities may expect certain reporting to be done to indicate the severity of the problem in organisations and how it is being dealt with. Once the organisation has specified its stakeholders in the HIV/AIDS campaign, it is next necessary to specify the capabilities to be delivered to each specific stakeholder group. This is assessed next.

Capabilities

Capabilities are the outcomes that are important to stakeholders, and that are delivered by the organisation. As stated above, the capabilities that a firm can deliver to its stakeholders depend on several things. Most obvious are resources: larger organisations may enjoy economies of scale, allowing them to deliver capabilities that smaller firms cannot. Furthermore, the particular configuration of organisation type, stakeholder groups and other issues (e.g. union or industry stances) may also be determinative. Therefore there is no one 'right' list of interventions, and each organisation must do what it can within its own particular context.

With regards to employees, the potential capabilities needed to meet their needs may include the following (Global Business Coalition on HIV/AIDS, 2002):

- *A non-discriminatory policy*: including establishment, communication and noticeable enforcement of non-discrimination.

- *Education, prevention and awareness*: in the workplace, such programmes are generally performed through training. This is widely seen as one of the most effective ways of helping to curb the disease, through the reduction of new infections (Stone, 1994:52-64).

- *Voluntary counselling and testing (VCT)*: this requires a medical staff member (generally on-site) who can counsel and administer an HIV test. At present, a rapid testing process is seen as the easiest way to go about this, allowing the person to go through the entire process of pre-test counselling, testing and post-test counselling at one time. This greatly reduces the risk of a patient not returning. Organisations can contract in specialists on a regular basis to do this should they lack the capacity themselves.

- *Care, support and treatment*: should an organisation have a high prevalence rate, it may be advised to

consider ways to facilitate access to support and medication. This has proved less than easy in developing countries. Medication in Africa is prohibitively expensive. Employers are gradually realisrealising the potential importance of medication, as it can substantially stave off AIDS-related conditions and may increase life expectancy. This improves infected employees' ability to remain economically active, mitigating the cost to the company. The benefits of longer productivity are especially important in countries with strict laws for the job protection of infected individuals.

If the infected group are not a large part of the current firm, primary interventions such as education and VCT are likely to be the focus of efforts and resources. With a high prevalence rate, care support and treatment are likely to increase in importance.

The treatment of employee dependents has been the subject of significant debate. Increasingly it is recognized that, if at all possible, access to medication for dependents may be required. However, in light of the expense of such medication, many organisations would find it difficult to give provision to this group. Certainly, it may be possible to provide education, awareness and counselling for families of employees (Breuer, 1995:62), and perhaps testing too.

Thinking beyond the immediate effects of the disease, it is crucial to recognize the potential effect of high HIV/AIDS prevalence on the core, everyday organisational operations (as discussed earlier). Specific capabilities may be required to counter the impact of increased absenteeism, turnover, poor productivity etc. The competent firm, that wishes to minimize this impact on profits and the unaffected workforce, needs to develop work strategies. For example, multi-skilling of staff may be beneficial in this regard. Employees not affected would be empowered to fill in for absent co-workers, allowing productivity to continue and avoiding unnecessary bottlenecks (Aventin & Huard, 1999: 363-375). Such multi-skilling requires in-depth on-the-job training to ensure that all employees are capable of doing the work of co-workers who are absent. Again, other forms of flexibility may prove efficacious, as theorised generally in the management literature.

Moving to shareholders, one notable capability may be the reporting of related information, such as prevalence rates, interventions, and cost effectiveness. Similar reporting may be required for government in certain countries.

Above it was mentioned that customers might be stakeholders if the processes of the firm are affected by their HIV/AIDS infection rate. In such cases, it may be necessary for the firm to redesign their processes and product offerings. This would ensure that the products being offered are able to add value for both customers who are living with AIDS and those who are not infected. An internal capability in this regard may again be flexibility. In the case of HIV/AIDS, the firm may need to alter its product rapidly to meet the changed needs of someone recently diagnosed with the disease (as in the case of medical insurance providers needing to restructure the client's benefits schedule to take special account of the symptoms of AIDS). Furthermore, the overall offerings of the firm may need to be restructured according to the aggregate prevalence rates in their client base (as with altered actuarial estimates for life-insurance companies). Organisations with the capability to be flexible will find themselves less affected by HIV/AIDS than their more rigid competition.

The two architectural elements discussed so far (i.e. stakeholders and capabilities) are really the primary inputs into the core architecture of the organisation. The actual building blocks of the firm, which deliver capabilities to stakeholders, begin with processes. Therefore some of the major process issues associated with an HIV/AIDS campaign will now be discussed.

Processes

In order to deliver the aforementioned capabilities to stakeholders, firms require well-designed processes. Veasey classifies processes into management, operational and support (Veasey, 2001: 420-436). We will follow these classifications, examining them in reverse.

With HIV/AIDS policies and programmes, the support processes are generally considered the most important. These include the specific and idiosyncratic processes that deliver the capabilities of peer education, VCT, care, support, treatment, etc (Global Business Coalition on HIV/AIDS, 2002). Competent and experienced individuals are needed to define the activities, role-holders, objects used, co-ordination (sequencing and synchronicity of activities) and linkages that make up these processes. It is quite possible that a benchmarking and/or consulting exercise may be needed in this regard with individuals or organisations experienced in these processes (especially for organisations beginning their HIV/AIDS strategies).

A further consideration is the effect of HIV/AIDS management on the core operational processes of the firm. As mentioned above, issues such as absenteeism may affect normal operational processes. This may need to be built into process planning. For example, the 'savvy' firm may choose to deal with absenteeism by introducing flexitime. Some hard-hit organisations might choose to redesign their operational processes somewhat, perhaps again introducing multi-skilling, job rotation, and/or autonomous work teams to buffer against the possible effects of absenteeism due to sickness or responsibility (Aventin & Huard, 1999:363-375).

Some organisations find that it is difficult to implement HIV/AIDS programmes, such as VCT or peer education, in the midst of tight production schedules and deadlines. Therefore it may be necessary to incorporate (or 'interweave') interventions *into* the core operational processes of the firm. For example, Aberdare Cables in South Africa have incorporated their educational initiative directly into their manufacturing schedules.

As indicated above, the operational processes of certain firms may also be affected by the HIV status of their customers (e.g. in hospitals, surgical and nursing procedures

have had to be redesigned to account for infection from accidental punctures. We also mentioned above that organisations such as medical insurance or financial services firms may choose to alter their products according to the infection status of the client). Of course, many countries include legislation to account for and occasionally disallow this. However, within their legislative framework, many organisations can still make positive product changes that prove valuable both to themselves and their customers.

Finally, the managerial processes associated with HIV/AIDS programmes range from the strategic to supervisory. For example, many firms include initial 'situation analyses' (i.e. assessing prevalence levels, estimating costs to company) as the first step in their management of HIV/AIDS (Global Business Coalition on HIV/AIDS, 2002). They also include monitoring and evaluation as a final process. These are management processes that need to be designed and implemented. Another managerial process example is the delivery of reports and evaluation to shareholders, which requires and impacts upon specific management processes, notably accounting.

For a firm with good process diagnostics, it is possible to build HIV/AIDS issues into almost every element of micro-management, especially human resources (McLean & Moore, 1997: 22-28). For example, one can design special performance appraisal, remuneration and other processes so that the infected group is not unnecessarily penalised for consequences such as absenteeism. Special leave systems may need to be designed. Of course, employees would have to disclose their HIV status voluntarily in order to qualify for the altered processes. See below on the cultural caveat implicit in this necessity.

Knowledge, skills and abilities (KSAs)

Processes deliver capabilities to stakeholders, but several other building blocks are required to initiate and drive processes (see Figure 1). One of these architectural elements is the knowledge, skills and abilities (KSAs, sometimes called 'competencies') that enable processes.

We will break these into three sub groups, namely base-level KSAs, specific programme KSAs and operational KSAs:

- *Base level KSAs*: These are the knowledge and skills that the organisation wishes every member to possess. Most employees probably already have some basic knowledge about HIV/AIDS. It is however important to ensure a standard base of knowledge as a point of departure for further training and improved skills. Initial HIV/AIDS awareness and condom distribution and use would fall into this category of basic education.

- *Specific programme KSAs*: All of the support processes mentioned above require HIV/AIDS programme-specific knowledge, skills and abilities. For example, if peer education is used firms need to ensure that adequately trained and equipped peer educators are placed at every level of the organisation to help other employees. Examples of KSAs in this regard include

specific knowledge about the disease, counselling skills, networking knowledge etc. In the case of VCT, specific skills include those of the medical worker (occupational health care worker), those of a dedicated team of counsellors and managers' abilities to understand and disseminate important information to staff about the policies and programmes. As can be seen, the KSAs surrounding a comprehensive HIV/AIDS campaign can be extensive. Firms with a good architecture need to detail these, and link them to each process and capability being delivered. Other organisations might choose to outsource many of the skills that, for reasons of scale economy, they cannot feasibly produce in-house.

- *Operational KSAs*: As mentioned above, operational processes can be impacted significantly by HIV/AIDS. Several solutions, such as multi-skilling, work teams, flexitime or job rotations have been proposed. These require certain KSAs to be put into place. For example, the multi-skilling of staff requires training to deal with the peripheral competencies within the organisation. Teaming may require specific training in the KSAs needed for group work (Stevens & Campion, 1994:503-530), especially in an environment where productivity from any given team member may become variable, and resentment occur as a result. Aventin and Huard also suggest possibly formalizing operational knowledge (mainly through codification) to minimize loss of tacit intellectual capital from turnover (Aventin & Huard, 1999:363-375).

In addition to detailing the competencies related to the HIV/AIDS strategy, there are various structural and organisational issues that will be considered in a good strategy. These are assessed next.

Structure and systems

Several elements of the organisational structure and system relationships are likely to be affected by a thorough HIV/AIDS strategy. These organisational issues need to be specified in the enterprise architecture.

For example, the firm might consider putting in place various formal bodies and positions to deal with the management of the HIV/AIDS strategy. Thus, for instance, some organisations might institute a committee to guide policymaking and provide advice to the senior management of the organisation. At the same time, task teams might be established to investigate and implement specific interventions, such as educational programmes, treatment alternatives and the like (Breuer, 1995:62). Furthermore, Wolfenden and Welch suggest that a 'coordination activity' be specified (Wolfenden & Welch, 2000: 97-106). Many organisations designate overall responsibility to a specific senior management post, perhaps even at the vice-president or equivalent level. Often this would be the human resources executive.

Not only would the formal bodies be specified in the architecture, but reporting relationships and other issues

between them would also be decided upon. This is the place in the architecture for formal 'organograms' if necessary.

Some firms may also choose to establish formal VCT units. Again, employers can choose to outsource this function.

The management and leadership of the organisation are also vulnerable to infection. Higher incidents in turnover and absenteeism amongst senior management will threaten the cohesiveness of the structure. Substitutes for leadership may therefore be needed. HIV/AIDS issues will also probably need to be integrated into succession planning.

Job design will likely be impacted in several ways. As discussed already, jobs may need to become more expansive through techniques such as enlargement and multi-skilling in order to compensate for a diminishing workforce.

Being infected or affected with HIV/AIDS is in many countries not legitimate grounds for dismissal without substantial poor performance. Such employees can remain productive for several years with access to medication and therapies. It is therefore incumbent on the organisation to ensure that there is fit between the employee and job, status notwithstanding. This can often be achieved through 'reasonable accommodations' (e.g. reassignments, retraining, flexibility, use of equipment or devices to assist in jobs (McLean & Moore, 1997: 22-28; Aventin & Huard, 1999: 363-375). However, there are a few exceptions. Naturally, employees with HIV/AIDS should not fill positions that carry with them a high risk of transmission. As employees who are living with AIDS become increasingly weakened, their ability to perform their jobs should be re-evaluated with the ideal intention of moving them to less stressful jobs of similar status, or other options.

Many of these job-level issues are difficult to specify in advance in the architecture. However the broad strokes of a policy can be put into place, as well as a procedure for dealing with changes in the jobs and careers of people who are at various levels of infection or are seriously affected.

Technology

HIV/AIDS has the potential to impact on an organisation's technologies. Obviously the HIV/AIDS specific processes may require their own technologies. For example, treatment facilities may be provided by organisations, which include access to antiretroviral therapy, condom distribution, VCT as well as advice on holistic approaches to the treatment of HIV/AIDS. At the very least, facilities for training, counselling etc. may need to be introduced. Some firms choose to introduce a 'health centre', including various resources (Aventin & Huard, 1999: 363-375).

In situations where core operational processes are affected, technology could serve as a substitute for labour in the face of a diminishing employee base, allowing the impact of the disease to be mitigated. Of course, such initiatives need to be considered carefully in light of general economic considerations and the collective bargaining context.

Culture

The final element of architecture utilized here is culture. The organisation's culture is singularly important. It infuses all other aspects of the architecture (see Figure 1) and plays a vital role in the way in which the organisation will respond to HIV/AIDS. Culture has the means to energize action, destigmatise and demystify the disease.

Corporate culture largely consists of core values and norms. An explicit HIV/AIDS-specific statement of corporate values, behaviour guidelines etc. may therefore be vital. Value issues must also be *demonstrated* though behaviour.

Employee attitudes are of course the ultimate arena of culture and values. Changing perceptions towards HIV/AIDS can be crucial not only to destigmatise the illness, but also to encourage behaviour change. Initiatives in this regard can be quite similar in nature to diversity campaigns. For example, awareness training on transmission and prevention is often used to effect behavioural change. Sensitivity training may also be needed in order to inculcate values such as empathy, respect, tolerance and understanding, which will in turn stimulate an environment in which disclosure is encouraged. HIV-positive employees are often used as peer educators in these programmes to great effect, assuming there is no perceived or actual threat of discrimination and reprisal. Such cultural initiatives, if desirable to the firm, should be specified in and planned for using the enterprise architecture.

Management style is another crucial cultural determinant. Visible commitment by leadership to the issue helps provide a clear signal to the rest of the organisation (Stone, 1994: 52-64). It is necessary that management buy into any policies in place, and act accordingly. Integration of this into the architecture may include making provision for specific management training programmes, initiatives and events, and even behaviour guidelines for managers.

The type of language used by an organisation, and in an enterprise architecture, plays another potentially critical role. Language is generally the medium through which messages are imparted to and disseminated amongst organisational members. Most importantly, it has the power to add to or detract from the credibility, legitimacy and acceptance of the content of messages. Since an architecture is primarily a communication device, the language used can set the tone for communication generally. Most campaigns now emphasize a positive approach to living with illness, including positive language. Words and phrases such as 'holistic approach to treatment', 'healthy lifestyle', 'effective and affordable treatment' should be espoused by the organisation and in the architecture specifically. These positive expressions are deliberately substituted for phrases such as 'terminal illness', 'death', 'impact on the bottom line', 'loss of skills' and the like. In this way, the organisation affirms its commitment to managing the illness responsibly and effectively.

Culture can be crafted in the types of contracts entered into with employees. It is generally accepted in law and ethical frameworks that infected employees should enjoy equal

degrees of contractual security as their HIV-well colleagues (UNAIDS. Joint United Nations Program on HIV/AIDS, 2002). However, even where employees are incapacitated, other alternatives could be explored such as 'boarding' the employee. Although it is difficult to integrate these sentiments fully into an explicit architecture, non-discriminatory policy statements are often utilized and can be effective in this regard (Global Business Coalition on HIV/AIDS, 2002).

It was mentioned above that, if targeted internal processes (e.g. human resource processes) are to be applied to various employee groups, disclosure would generally be a necessary antecedent. In many countries, this necessity brings legal issues to bear. It is crucial that firms are not perceived (rightly or wrongly) to be bribing employees to disclose their status by offering them special favours in this way. Trust is of course crucial.

Another issue is the reactions of non-infected and minimally affected employees to these sorts of changes (Bordwin, 1995: 49-52). Resentment may arise from the attention and resources being directed towards HIV-positive and affected individuals, especially in societies with high levels of stigma. It may be vital to delay process change until peer education has run its course, and attitude surveys indicate a certain base level of understanding and sympathy for the issues.

Culture is also affected by reward and benefit structures. Many organisations have been forced to make benefit structures more accommodating to an HIV-positive workforce (Bordwin, 1995: 49-52). For example, the provision of antiretroviral therapy may be important to ensure the vitality and productivity of the workforce. Some medical insurance schemes may provide access to treatment for both employees and dependants alike. At the same time, organisations might provide free or subsidized therapy. A general statement underpinning the organisation's approach to such benefits could be included under the cultural element of the architecture.

Further enterprise architecture considerations

There are various ways in which a firm might use an architecture to co-ordinate and communicate its HIV/AIDS strategy:

- Direct integration into a fully-developed architecture already in place for the firm's normal operations,

- Alternatively, a 'satellite' architecture could be developed to work along side the main document, including the idiosyncratic HIV/AIDS policies and programmes and linkages back to the main architecture (e.g. the necessity to change benefits structures generally).

- Should an organisation not possess a general architecture, it would still be possible to develop one for the HIV/AIDS strategy. However the linkages to the core operational processes and issues of the organisation would have to be specified in greater detail, and changes to core elements of the firm would have to be communicated either through the use of the specialized architecture or through isolated communications. This would not be optimal.

A significant limitation with the enterprise architecture concept is that it may difficult to have one framework for a very large and diversified organisation. Anglo American, for example, could hardly have a single explanatory network for all its incredibly diverse operations. In such a case, the organisation may find it necessary to have different architectures for each individual business unit. However in the case of an initiative such as an HIV/AIDS campaign, the diversified corporation may wish to develop a centralized strategy and delivery capability. Veasey describes an underlying architecture for such diversified enterprises, which he terms 'business federation design' (Veasey, 2001: 420-436). This further architecture helps to define the specific merger capabilities brought about by the union of dissimilar units. Therefore, although each unit would have its own separate architecture, a business federation design could be developed to centralize the HIV/AIDS architecture and show how it links to the rest of the organisation.

Finally, another possible element in the architecture is an overarching information-processing function. Such an element comes naturally to the concept of architecture, which has strong roots in information systems. Knowledge management concepts and systems could be defined under this element, with the intention of gathering ongoing information and capabilities around HIV/AIDS, which after all is a constantly changing area of study and application.

Conclusion

In conclusion, the enterprise architecture concept may fulfil one of the crucial missing links in the organisational management of HIV/AIDS. Using an overall framework to co-ordinate efforts has proved useful in many other contexts. Given the specific requirements of successful HIV/AIDS strategies, it is suggested that firms consider this or a similar management method.

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