THE FEASIBILITY OF A LONG TERM INVESTMENT PLAN FOR THE PERFORMING ARTS AND HERITAGE SECTORS.

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The Feasibility of a Long Term Investment Plan for the Performing Arts and Heritage Sectors

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1.0 INTRODUCTION - AIMS AND STRATEGY

The 1982 Report of the Federal Cultural Policy Review Committee (Applebaum-Hébert) made the following statements:

- "...federal cultural policy has largely favoured physical plant and organisational development over artistic creativity and achievement"1

- "The bricks and mortar are necessary, but they are not the end product, the purpose of it all."2

While never denying the importance of the capital infrastructure, the report goes on to make over a hundred recommendations on the role of government in the planning, management, operation, and assessment of the broad-based cultural sector in Canada.

In explaining the political economy of culture, the Applebaum-Hébert Report observes:

- "All cultural pursuits use resources in the broad sense of that term, which embraces not only those goods and services that accountants deal with, but also human talent, knowledge, skills, energy and time."3

1Report of the Federal Cultural Policy Review Committee, Ottawa: Information Services, Department of Communications, Government of Canada, 1982, pg. 6.

2Ibid., pg. 6.

3Ibid., pg. 64.

- o "we were told - ... - that the resources available in Canada were inadequate or misdirected or both."[4]

Culture (We are using culture in the narrower sense of the term as the creative, imaginative act in society -- more specifically arts and culture.)[5] is an interdependent system involving a cycle of production distribution and consumption. The question of the government role in this sytem is a puzzling and important problem. The Federal government alone is investing $1.5 billion in culture annually. We are witnessing a growing concern with ways and means of achieving greater value for money for this large public investment. This telos is the point of origin for this project.

Although rationality has always been a major principle for government investment, we have only recently seen an even greater emphasis on value for money considerations. This legacy of the economics of scarcity and increased calls for public accountability has begun to exert greater influence in areas such as cultural investment.

The ideas that the various parts of the cultural process are interrelated and that there are common units suggest that, with some limitations, cultural policy should identify and take advantage of conceptual linkages and adopt an integrated approach to the formation of government investment and spending decisions.

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[4]Ibid., pg. 64.

[5]Ekos Research Associates Inc., Final Report - Comparative Analysis of Three Surveys of Opinions on Government Support for Arts and Culture, prepared for the Secretary of State, October, 1980.

The idea of a business-like approach to government spending and investment in culture has already been formally considered in the area of capital requirements. The feasibility of extending this approach to "flesh and blood" issues (viz. human capital), and even further into areas such as the nature of organisations and the tastes and attitudes of consumers is the subject of this inquiry.

The concept of an integrated system for the allocation of resources is what Applebaum-Hébert calls "the stuff of economics"[6], although the report qualifies this statement by cautioning that often the language and logic of economics are used mistakenly in areas that belong to other disciplines. We will agree that a rational investment planning system requires a clear demarcation of the processes of cultural creativity and management.

In this study, we will examine the feasibility of developing a long-term investment plan for the performing arts and heritage sectors, which would go a long way towards resolving the problem put forth by Applebaum-Hébert. We will heed the caution that Applebaum-Hébert put forward about an over-reliance upon the science of economics, and proceed rather with a recognition of the interplay of economic and non-economic forces which affect the policy and decision-making environment. We have also found it necessary to expand and adapt the traditional concept of economic investment planning to suit the unique exigencies of federal intervention in arts and culture.

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[6]Report of the Federal Cultural Policy Review Committee, pg. 64.

This entails retaining a rational empirical approach while broadening the traditional scope for inputs and outputs to include economic and non-economic.

In the sections and chapters that follow, we will set out our understanding of the "feasibility" problem, its resolution, and our conclusion and recommendations. In working through the "feasibility" problem, we will provide guidelines on how future research should be organised and performed, to what ends, and with what anticipated results.

1.1 Our Understanding of the Problem

The basic research problem was complex and difficult. First, we were to consider a Long Term Investment Plan (LTIP) for the performing arts and heritage sectors in terms of technical feasibility. Questions of technical feasibility include: is the underlying logic for LTIP sound (viz., is it plausible to believe that such a plan fosters the stated objectives)?; how methodologically tractable is LTIP -- are the appropriate data available, or easily collectible?; what is the relationship between empirical indicators and underlying concepts (measurement issues of reliability and validity)?; what sample coverage is necessary (in terms of both time and space) for reasonable confidence in the generalisation of results?; what levels and units should be employed for data base management?; what analytic techniques should be applied to the data to answer key questions?

Secondly, we were to consider the separate question of practical utility of LTIP. This would involve a critical assessment of the range of likely applications for LTIP, the probability that such applications would occur, a

consideration of methods for enhancing the use of LTIP, and a critical assessment of costs and benefits of the overall plan and various sub-components.

Assuming positive conclusions for the technical feasibility and practical utility questions, we were then to propose the necessary research and data elements for LTIP. In summary, the basic purpose of our project was to assess the feasibility and utility of LTIP and then to sketch a basic research agenda to support LTIP. Is it possible and practical to approach? And if so, how?

1.2 The Research Context

It is important to position LTIP within a policy and decision-making context. Even the best research knowledge will not in itself have any impact on the process of public investment decisions. It is essential that LTIP be designed with explicit linkages to the policy and decision-making process: who will consume the research?; for what purposes?; what are the means and media for the knowledge transfers?; how will they be incorporated into the investment planning process?; etc..

At a more immediate level it is important to ground LTIP within the context of several parallel initiatives. In order to avoid redundancies and maximise complementarities, we gave explicit attention to the relationship of LTIP to CIPIS (the capital investment planning information system currently being developed in the Department), the Task Force on Funding to the Arts, and other on-going activities. The CIPIS - LTIP linkage is the most important for the current exercises since it involves the greatest potential overlap, the most direct

complementarity, and since the planning for CIPIS is already in motion. Essentially CIPIS will deal with capital considerations whereas LTIP will deal with "human capital" considerations as well as other non-material factor inputs.

If a research program to support LTIP were being created ex nihilo, it would clearly be different than what it would be given CIPIS' presence. For economy and efficiency, we propose to define LTIP in terms of the residual investment planning questions unanswered by CIPIS. Our review of this set of remaining questions leads us to conclude that there are a range of fundamental issues germane to assuming a rational, empirical, business-like approach to managing public investments in the performing arts and heritage sectors. CIPIS alone will not solve the problem of rationalising public (federal) investment: the crucial aspects of human capital investment along with other operational factors must be considered in conjunction with traditional capital questions.

For these reasons, LTIP is an important, non-redundant exercise, somewhat broader in scope and mission, that adds an expanded substantive focus to material capital planning. LTIP is also distinct in the sense that it is not a simple information system but rather a coordinated package of research undertakings in the areas of organisations, markets, and labour.

1.3 Report Organisation

The chapters that follow present our actions and findings as we investigate first the question of feasibility

of LTIP and then the structure and content of a major research agenda for future refinement of the system.

Chapter two describes the major highlights of our review of the current literature on the problem as well as considerations from our consultations with experts in the field. Key concepts of business investment theory are described.

Chapter three examines the logic of the LTIP model and explores the meaning and contextual application of concepts such as return on investment, risk management, and human capital. Chapter three also examines the relationship between LTIP and parallel initiatives such as CIPIS and the Task Force on Funding of the Arts, the range of potential users and applications, as well as the position of LTIP in the decision, policy, and planning context. Finally, a conclusion on conceptual feasibility is provided.

Chapter four develops an inventory of major concepts required for LTIP, data requirements and their availability, measurement issues, definitions of performance indicators, levels and units of data assembly, data management considerations, as well as analytical considerations, including modelling data treatments, and potential errors.

Chapter five divides the research field into three specific study areas - supply, demand, organisation/industry - and identifies partial studies, study linkages and an overall integrated research approach. Chapter five then proposes a number of research packages of varying size.

Finally, Chapter six outlines our conclusions and a number of caveats and limitations of the planned system.

2.0 LITERATURE REVIEW AND CONSULTATION PROCESS

The intent of our literature review was to uncover selective information with which to make the "feasibility" decision, rather than to supply the exact nature and content of the eventual LTIP system.

An extensive survey was undertaken of the economic literature in the areas of classic business investment planning models, return on investment, the management of risk and the theory of human capital. In addition we examined the literature of broad government investment in the performing arts and heritage sectors, both in Canada and abroad. More specifically we examined studies on the economics of arts and heritage, the structures of markets, organisations, and industry groups, and the available banks of information on cultural and related statistics. Finally, we reviewed the current processes of policy planning and decision-making for the performing arts and heritage sectors at various government levels in Canada.

To complement our literature review, we also met personally with economists, cultural statisticians, policy and program planners, and researchers doing related work in the performing arts and heritage fields.

2.1 Classic Business Investment Planning Models

The economic literature dating back as far as Adam Smith's classic "The Wealth of Nations" is rich with theoretical discussion of the reasons why entrepeneurs invest current resources, the proper areas for government investment, as well as details of specific results of government intervention in the market-place. In fact, much

of the literature since adopts the same approach: a general theoretical discussion of the motives and actions of investors; to a lesser degree the treatment of government as investor as a special case; and, the use of empirical results to verify the initial logic of a conceptual model.

For our purposes, the most important step is to identify those elements of business investment theory that are universal, their applicability to the case of government investment, and empirical proof of the logical integrity of the system.

2.1.1 Business Investment Theory - Key Concepts

In this section, we will not endeavour to provide an exhaustive inventory of business investment models, but rather a layperson's guide to the recurring themes that run through the literature.

In the business context, a firm will make an investment when it has an expectation it will be able to increase its stock of wealth over time by re-deploying the levels and mix of factors of its current production (traditionally, capital, land, and labour-usually supplemented by managerial expertise). This notion of expectation can be expanded beyond the level of the firm to larger groupings of firms by product or industry, and eventually to the total economy. This description introduces several extremely crucial concepts of investment:

- investment is a "flow" i.e., it has a time dimension, whereas capital or labour is a stock i.e., its magnitude has no time dimension;

- o investment theory assumes that factors of production can be combined in different proportions to produce different levels of output;

- o investment theory considers both the cost (value) of input factors as well as the revenue (wealth) of output;

- o investment takes place when there is a perceived opportunity in a firm (or aggregated - an industry, or an economy) to produce additional wealth through a re-allocation of resources to the various factors of production;

- o the decision to invest is a "value judgement" of the firm based on its own expectation of the conditions of markets in the future;

- o and finally, and by no means trivially, a firm will act rationally to maximise its own stock of wealth (profit, value of assets, etc.).

In the most extreme case, all firms would have the same expectations, attempt to reach the same levels of wealth, and take exactly the same actions. Fortunately for the investment process (and the economy in general), this is not the case. Some of the key differentiating factors between firms include: the basic philosophy of the firm (risk taker/aggressive vs., risk avoider/conservative); its treatment of time (quick return vs., smaller but steadier returns over the long-run); imperfections in the market (lack of knowledge of costs and availability of factors of production, lack of awareness of market factors e.g.,

actions of competitors, consumer preferences, etc.); and its valuation of current production factors over time (i.e., the impact of technological change on capital, training on labour, obsolescence, ...).

These four differentiating factors identify four more key concepts of investment theory:

- o firms can be differentiated by their treatment of risk (firms value differently the utility of new investment to produce additional wealth based on their attitudes to maintaining their current level of wealth);

- o different firms place different current values on the same stocks of wealth in the future;

- o market imperfections (both supply and demand) differentiate the expectations of firms and produce various investment strategies by individual firms; and

- o firms may value differently the appreciation or depreciation of current factors of production over time.

To summarise, each individual firm will try to maximise over time its own expected yield from its current investment in specific factors of production. Aggregated across the economy, eventually an equilibrium point will be reached when all firms are satisfied that they will maximise their expected return.

This last statement is a very hypothetical situation, since markets are dynamic or in fact a series of continuous points of equilibrium.

As a surrogate, economists develop the concept of discount rate, rate of return or interest rate to suggest the levelling-off point for investment expectations across the economy. For example, the current value of an asset can be expressed as:

$$C = \frac{Y1}{1+r_f} + \frac{Y2}{(1+r_f)^2} + \ldots\ldots + \frac{Yn}{(1+r_f)^n}$$

where: C = current value of the asset
Yi = expected yield in period i
r_f = discount rate/rate of return for the asset that makes its current value equal to its expected yield.

Each firm will internally place a different value on r_f, but on aggregate there will eventually exist a general value for r which will hypothetically balance the expectations of all firms.

If we convert the value of current assets into money terms, we can develop the concept of an interest rate which is simply the equilibrium point of supply and demand for money between those firms or individuals who are prepared to invest money on current production factors to produce greater future wealth, and those firms who feel that they are less able to produce future wealth and are satisfied with the fixed payment for their money from those who wish to invest. Classic economics suggests that eventually an interest rate will be found to balance the intentions of investors and non-investors (savers) and that it is based on a combination of real expectations, the amount of risk and the preferences of firms (individuals) for wealth over time.

Inherent in all the theories of investment is the idea that knowledgable actions of entrepreneurs will result not only in the expansion of their own wealth, but in a general increase of the level of wealth in the society. Principal among the growth or "development" economists were Evsey Domar, R.F. Harrod, J.R. Hicks, and James Deusenberry, who developed various forms of investment "accelerators" which prompted growth by continuous re-investment of the surplus outputs resulting from investment - much of their theory focussed on the "capital" problem. Further work (e.g., Harold Pilvin) confronted the problem of substitution between labour and capital. The basis for much of the further work in this area resulted from the seminal work of economists such as Theodore Schultz and Gary Becker on the theoretical and empirical basis of the concept of "human capital". Another major contribution to the theory was that of Joseph Schumpeter who identified the entrepreneur as the mainspring of economic growth by introducing new methods, new products, new types of organisations in the quest for profit.

We will come back to the practical application of this general investment theory in Chapter Three when we examine the logic model for LTIP.

2.2.1 Existing Applications in Performing Arts and Heritage

The intention of our literature review and of our consultations with planners, policy makers, cultural economists, and cultural statisticians was to determine if the underlying principles of investment theory had been carried over into specific applications in the performing arts and heritage sectors.

Almost without fail, our research showed that if some sort of economic analysis was undertaken, it was at the micro level, relying on the oft-cited "ceteris paribus" proviso, and more often than not what was presented as analysis was nothing more than an ex post accounting of a situation or series of events.

For example, in the Canada Council's "Selected Arts Research Statistics", there are a number of time series on the "leverage" (expenditure per dollar of public subsidy) for various performing arts. While this information is most useful in exposing the results of government action, it would be instructive to compare this information with the original policy intentions.

An exception is the 1980 study of Community Infrastructure and Cultural Participation (CIPC). This large study attempted to document the relationship between cultural supply and demand characteristics in 31 Canadian communities. It was successful in showing that investments in both the material and human infrastructure were related to tangible increases in the demand for cultural goods and services. This finding was of profound significance for federal policy since it showed there was a logical and empirical causal relationship between investments in cultural infrastructure and demand and participation levels. Furthermore, there were differential slopes for different types of input. This suggests that there is a theoretical and technical possibility of ascertaining the relative return on investment for different kinds of investments. Through time, this modelling and evaluation could be iteratively refined on a trial and error basis.

The CIPC experience was subsequently replicated and refined in the process of evaluating the Special Program of Cultural Initiatives (SPCI). The greatest deficiencies of both the CIPC and SPCI studies is the limited number of cases available for analysis (31). However, they have provided a firm benchmark for future efforts such as CIPIS and LTIP and have clearly demonstrated the theoretical and methodological feasibility for such exercises.

While there is no question that governments operate in every form of risk situation (e.g., from low risk situations such as artifact acquisition or capital maintenance programs to high risk situations such as funding of experimental media or "new frontier" capital infrastructure), there is little or no discussion or classification of government spending actions by level of risk, expected return, payback periods, or other traditional investment concepts.

This omission in the literature probably reflects two major characteristics of the real world:

1. The basic distrust of the cultural sector for any form of scientific research on cultural operations and the nature of the markets for culture.

2. The general lack of precision in the assignment and measurement of objectives of public sector programs.

The second area is now being addressed through the more rigorous application of program evaluation methodology to better-structured planning and operating program systems.

While performing arts and heritage organisations may continue to cast a wary eye on economists, statisticians, accountants and practitioners of other "dismal sciences", their recognition of the growing competition between various areas of public concern for shrinking public dollars has made them more receptive to the less painful forms of managerial planning, budgeting, and performance appraisal systems.

Although our literature review and direct consultations did not uncover existing comprehensive public investment models for the performing arts and heritage sectors, at the same time, we found no evidence that would suggest that such an undertaking was logically or technically impossible. In fact, we were sufficiently encouraged by the limited evidence for specific cases to conclude that, with a sound theoretical basis, it would be possible to develop an analytical model that could provide an additional degree of precision to the current methods for investment planning and decision-making in the performing arts and heritage sectors. At no time, however, could such a model be a perfect forecasting instrument, given the enormous range of non-economic factors that influenced the investment process.

An urgent practical requirement for such a model would be a precise codification of federal policy and program objectives in the area of arts and culture. Only then could we begin to develop semantically consistent

performance indicators for ascertaining or predicting relative rates of return on investment. However, our primary conclusion is that a carefully designed and formulated research agenda directed to a more rational businesslike guidance of federal investments in arts and culture is both possible and desirable. This is not to propose the substitution of a value-free calculus for traditional decision-making systems. Rather than supplanting veteran modes of making cultural allocations with a mechanical technocratic mode we are suggesting reasonable methods of providing practical knowledge to assist the traditional decision-making process.

3.0 CONCEPTUAL FEASIBILITY OF LTIP (LOGIC MODEL)

To answer the feasibility question -- is a long term investment plan for the performing arts and heritage sectors feasible? -- we expanded the problem to the following:

> **"What is the feasibility of developing a logical, scientific model which, with available or potentially available data, can be utilized in the short-, medium-, or long-run by federal Ministers, officials of federal departments and agencies, provincial governments, and other interested parties (such as corporate patrons) to make co-ordinated investment decisions in the performing arts and heritage sectors in capital, labour, management and organisation structure, marketing and promotion, internal administration, and market management considerations (e.g., audience development, tariff and non-tariff barriers, etc.)?"**

We did not include time or cost considerations in the conceptual feasibility problem, but addressed these issues in an operational context (see Chapter 5).

3.1 The logical integrity of the LTIP concept

In assessing the logical integrity of the LTIP concept, it is essential to determine whether any model that would be developed is capable of ascertaining the truth or falsity of a proposition or set of propositions.

For example, one might wish to test the following hypothesis: "Federal government investment in theatres for

the performing arts or in public galleries or museums will increase public participation in the performing arts or heritage sectors". It can be shown that a series of logic statements can be developed which can test the truth or falsity of the proposition. Our approach is stochastic (i.e., probabilistic), examining phenomena that tend towards certainty or lack of certainty.

To show that such an approach is meaningful, consider the following hypothesis: "Public participation in arts and heritage events depends on the time of day that government investment decisions are made". It can be shown that there is no probable logical relationship between participation and the exact time of day that government decisions are made. The fact that the form of government investment (e.g., grants, contributions, loans, etc.) and the scheduling of government investment may through an extended logic chain ultimately affect public participation establishes clearly that this analysis is non-trivial.

In essence, LTIP hypothesises a probablistic or stochastic causality between a set of potential outcomes in the future and a set of current factors which can be established by systematised observation and experimentation over time.

3.2 How well and how far the Economic Concept can be Applied

While there is inherent logic in LTIP, that by no means establishes that only purely economic concepts are admissible.

Economic Factors

- As discussed earlier, the broad set of considerations that form the supply and demand for factors of production, as well as the relationship between factors of production would be included (SUPPLY SIDE).

- The factors that affect the supply and demand for output would be included in any model (DEMAND SIDE).

- The economic aspects of investment decisions (expected rate of return, risk, payback period) would also be part of the conceptual model (although with limitations as indicated in a later paragraph) (THE INVESTMENT DECISION).

- Broader economic considerations such as investor confidence, quality of factors of production, economic impact on other industries (both on the supply and demand side), equity in allocation of resources, collective bargaining, technological change, obsolescence, economies and diseconomies of scale, can be included in the logic model (STRUCTURAL AND MACRO-ECONOMIC).

- The internal organisation and management structure of the individual firm or investor and the structural characteristics of similar firms and investors would be included (ORGANISATION AND INDUSTRIAL STRUCTURE).

While the economic factors would provide substantial information for the prediction of future possibilities, there is much information of an non-economic nature that must be considered including:

Cultural Factors: Including concepts such as artistic excellence, heritage preservation, identity and symbolism, knowledge and awareness, quality, values and attitudes, national pride, audience development, educational spin-offs, etc..

Social Factors: Including demographic life cycle characteristics of the market, patterns of participation, social interaction and networks, equity, accessibility, career development, public opinion, etc..

Political/Inter-governmental Factors: Including political priorities, historical funding patterns, cost-sharing/co-ordination, leverage, communications and public relations and information, harmonisation of objectives and programs.

Physical Factors: The characteristics, conditions, capacities, and facilities of both material and human infrastructure as factors of production.

Other factors: Including administrative (program management), legal and regulatory, customs and traditions/historical, and ethical.

Clearly, the final model could be constructed to include some or all of the above-mentioned factors. It is our intention to allow as much flexibility as possible for a full range of applications and users, and in the sections that follow we will demonstrate how certain factors can be included within the model or considered in the exercise of the model.

CIPIS is designed to address a host of economic, social, physical infrastructure and organisational requirements. The major addition of LTIP would be the consideration of the "human capital" aspect in detail as well as the trade-off between factor inputs and their impact on the total cultural investment decision field.

3.3 Return on Investment in the Context of the Performing Arts and Heritage Sectors

If LTIP is to be useful for policy planners and decision-makers, the notion of return on investment must be made explicit for the context of the performing arts and heritage sectors. Naturally, this presupposes a greater level of precision in terms of specifying cultural objectives and goals than currently exists.

To illustrate the dimensions of this concept, we can return again to the example of the business sector. For the business investor, return on investment simply means the actual product or the money compensation for that product that is generated by resources that have been invested (sometimes called yield). For example, as a simple case, an entrepreneur may invest $50,000 in a new die-cutting machine which produces product in one year valued at $10,000 (the product may be actually sold or held in inventory). The

return on investment is $10,000, and the rate of return is 20 per cent. This assumes that there is no net depreciation or appreciation in the value of the die-cutting machine. If, for example, the value of the machine erodes by $1,000 over the year, then the net return on investment is now $9,000 ($10,000 - $1,000) and the rate of return is 18 per cent.

But such a simple case assumes that nothing else in the factory changes (ceteris paribus) which is a highly unlikely scenario. It is likely that the new machine required a new operator (with a salary of $30,000 a year), some additional management time ($5,000 for work planning, instruction, etc.) and possibly an additional $5,000 for repairs, maintenance, and material replacement (blades, gears, etc.). Now we have a more realistic presentation of the investment scenario - $90,000 total new investment yielding a net return on investment of $9,000 or an overall rate of return of 10 per cent.

In this example, we have glossed over a number of underlying principles (such as the declining marginal rate of return on capital and labour, the relative rates of return between capital and labour, the marginal efficiency of investment, etc.) that in fact either intuitively or more rigorously (e.g., sophisticated linear programming and other optimization methods) form the basis for the firm's investment decision. What is important for our problem is the determination of whether equivalent elements can be developed for the contexts of both the performing arts and heritage sectors.

3.3.1 Return on Investment for the Performing Arts

The problem of defining return on investment for the performing arts is essentially two-fold:

(i) can the factors of production be sufficently described and measured to test a range of investment strategies?

(ii) can the product be described and measured?

Harry Chartrand (Futures) provides an in-depth examination of this problem in the 1977 study "The Industrial Organization of the Performing Arts". Chartrand presents three key supply factors: space, scripts, and performers (plus a section on unions). Essentially these factors correspond to capital, technology/material/ innovation, and labour. For each of these concepts he presents a number of measurable indicators such as: for space - performing space, backstage space, audience space, and ancillary space; for scripts - innovation (new scripts), Canadian vs. foreign scripts, cost of script development, creative artist employment, time between creation and innovation, etc.; for performers - income distribution, weeks of employment, years of professional training, institution/company linkages, etc..

Chartrand also proposes a wealth of descriptive indicators for the demand side with the product defined ultimately as "enjoyment" or "felicity" or some other similar term.

Chartrand also produces some excellent descriptive indicators on the nature of the markets for the performing arts, and the organisation of performing arts companies. Most significant to LTIP is his work on the economic and production functions where he examines factors of production individually and in combination and proposes a number of descriptive indicators. Chartrand is quick to note that:

> "many of the costs and benefits involved in the Performing Arts are not financial in nature. However, it should be noted that the cost and production functions of industrial corporations include many such intangible benefits and costs ... prestige, status, and other sociological variables ..."

In addressing the problem of government investment in the performing arts, we suggest that all direct government spending on a particular performing arts discipline be considered in the return on investment equation, including direct expenditures on factors of production - space, creative, performers, supporting organisations and their management; direct expenditures on creation of demand - marketing and promotion, distribution networks, market protection e.g., barriers to competition, tax expenditures, etc.; direct subsidy to the market for purposes of equity, regional distribution of resources, accessibility, etc.. There will be many cases where investments are multi-disciplinary, but an accounting allocation of expenditure can normally be made either from physical or material considerations (e.g., how big is the theatre workshop compared to the art exhibit facility?) or from usage (how often is the auditorium used for dance? opera? etc.).

The return on investment will be measured in mixed units - monetary and non-monetary. Some returns will be amenable to monetary measurement e.g., value of ticket sales, performers' income (both a cost and a return on investment), or even dollar value of induced investment from other sectors e.g., other levels of government, private corporations, etc.. Just as important are the non-economic/ non-monetary objectives such as participation, excellence, national identity or pride, which correspond to popular, critical, and national/international acceptance and acclaim. These considerations can also be measured in a reliable and valid fashion, though in non-monetary terms. Several previous studies have explicitly developed and tested operational procedures for measuring concepts such as cultural participation, cultural awareness, national identity[7], etc.. Hence we can still use econometric types of modelling with the non-economic response variables. It is most important to note the limits of this approach, e.g., excellence is operationally very problematic to determine.

Inherent in this whole conceptual system is the recognition that the valuation of return is based on the values/attitudes/beliefs of the investor. This requires that the investor express clearly the intentions of an investment and its expectation.

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[7]Ekos Research Associates Inc., Measuring National Unity and Sociocultural Integration: An Exploratory Panel Study of the Festival du Voyageur, prepared for the Canadian Unity Information Office, June, 1983.

[7]Ekos Research Associates Inc., Toronto International Festival: Final Report of the Integrated Analysis, prepared for Department of Communications, October, 1984.

[7]Ekos Research Associates Inc., Evaluation of the Special Program of Cultural Initiatives Background Studies Nos. 7 and 8: Creation and Analysis of Integrated Data Base, prepared for Department of Communications, November, 1984.

Hence, for government, the following hypothetical intention might be formulated:

> "For the next five years, we will invest one million dollars in experimental theatre companies, scripts, and performing artists for which we expect to see $500,000 worth of direct revenue generated to these companies, 20 new scripts produced annually (two per province), audiences of 40,000 people for their performance annually, the export of at least five new plays during the period, for which two must receive the critical acclaim of international juries, competitions, etc. ..." MACRO

Similarily another more specific problem might be:

> "How successful was a subsidy to gallery 'X' in increasing the participation level? In improving the quality of the showings?" MICRO

Finally, evaluation questions could be posed:

> "What would be the effect of 'X' amount of funding to support a new performing arts organisation in community 'Y'? In terms of income? Jobs created? New performances? Professional scripts developed? Increased accessibility?" MESO

Clearly, return on investment will not be measured in the crisp percentage units of our example in 3.2, but instead will include a mix of financial returns with program or effectiveness indicators. LTIP (in conjunction with

CIPIS) will allow the isolation of the impacts of investment in particular production factors - capital, labour, management, marketing and promotion, etc..

3.3.2 Return on Investment for the Heritage Sector

Similar descriptive indicators have been or can be developed for the heritage sector, allowing for a different product and motivation for government investment. The return on investment indicators will be primarily non-economic, i.e., access, participation levels, Canadian identity, cultural awareness, etc..

Critical in the analysis of the heritage sector is the fact that "product" in almost all cases appreciates over time once it is in the control of heritage institutions, while it may depreciate rapidly if it is outside of public (or quasi-public) control. This introduces the economic concept of "opportunity cost" which is the difference between the value of what one actually does compared to the most opportune thing to do i.e., lost opportunity. (In fact, the question of opportunity cost is also applicable to the performing arts case - the great untapped potential of Canadian performing artists - but it is not as immediately compelling as the actual visible decline in the physical value of rare artifacts.)

The notion of opportunity cost (or said differently, the choice of the best investment strategy) is the underlying rationale for the entire LTIP system.

3.4 Risk and Risk Management

Crucial to the discussion of the previous section are two more important concepts: risk and risk management. Both of these concepts affect the behaviour (and the modelling) of the potential investor.

Risk can be defined as the probable occurrence of a bad (negative) outcome. For example, "there is an 80 per cent risk of showers tomorrow". This example shows three very important qualities of risk:

(i) it can be assigned a numerical value;
(ii) it depends on the attitudes/beliefs of the risk-taker; i.e., showers are bad (a farmer might look at this situation in reverse in the growing season); and
(iii) it normally has a dimension of time (or space).

The concept of risk enters into any investment strategy. The risk-taker will expect higher rates of return on investment to compensate for the probability of adverse results. On the other hand, the risk-avoider will accept relatively smaller returns on investment since the possibility of bad results is lower.

Risk management strategies are simply a series of actions taken by the investor to ensure that a certain expectation level of success (avoidance of failure) is met. Strategies may include:

- the diversification of portfolios (into high-, medium-, and low-risk investments);
- risk-sharing (with other investors);

- o insurance (paying for full or partial protection - a form of risk-sharing); and
- o convertability/substitution of risk (e.g., coins bought for numismatic purposes can be converted into the value of the basic metal, thus limiting risk).

A market value for risk can be established, and risk can be bought and sold like any other commodity (e.g., insurance, mortgages, stock options, etc.). The question of time also enters into risk management strategies since the factors that create or eliminate risk may change over time. For example, because of uncertainties in the residential housing market, short-term mortgage rates may be substantially lower (or higher) than longer-term rates. The time dimension introduces additional strategies for the investment planner:

- o phasing of investments (both starts and finishes to "smooth" the variations of the market-place);
- o purchase of options (essentially a form of insurance for a fixed period).

Hence we can develop a simple expectations model as follows:

$$Y = \sum_{i=1}^{n} P_i \, Y_{Li} + \sum_{i=1}^{n} (1-P_i) \, Y_{Hi}$$

where:

Y = average or expected yield (income)
Y_{Li} = expected value of a low income in period i
Y_{Hi} = expected value of a high income in period i
P_i = probability of a low income in period i

3.5 The Need for a Human Capital Investment Model

A complex literature has developed on the concept of "human capital", the treatment of the individual as a factor of production similar to material capital. Without delving into the complexities of the theory, suffice to say that it is possible to generate human capital models similar to physical capital models. A very simple model[8] from Gary Becker proposes:

$$Y = X + rC$$

where:

Y = income/earnings of an individual
C = total investment costs (e.g., tuition fees, income foregone while in school, on-the-job training, migration, medical care, search for information on prices and incomes/career planning)
r = average rate of return (over a number of investment periods)
X = earnings where there is no investment in human capital (e.g., nepotism, discrimination, luck, etc.)

The importance of this simple model to our problem is again the fact that the investment variable C and its result Y can be measured for a whole range of disciplines, career preparation strategies, etc.. As with physical capital investment, there is a common unit (i.e, money value of government investment) with which to test various hypotheses on optimum investment strategies.

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[8]Becker, Gary, Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education, Columbia University Press, New York and London, 1964.

Again, we caution that there are a number of key non-economic factors which enter into the system -- most notably talent. In addition, there are economic notions such as skills depreciation, obsolescence, and maintenance, which seem rather crass when applied to human beings, but are generally accepted as realities of human life. This suggests that our early caveat on over-stressing the economic relationships of physical capital investment also applies to human capital.

3.6 Relationship of LTIP to other Parallel Initiatives

Part of the feasibility question is whether the new work required for LTIP is compatible with other major parallel initiatives.

The principal parallel initiative is CIPIS and, as suggested earlier, LTIP would consider those residual investment problems (especially human capital) beyond the physical capital considerations that will be handled by CIPIS. LTIP, like CIPIS, would be both descriptive and predictive, capable of exploration of causal relationships, evaluation of on-going events, as well as an additional tool for decision making. **We will strongly recommend that LTIP and CIPIS be closely linked not only in design but in implementation.**

The second parallel initiative is the Task Force on Funding to the Arts which certainly has a direct linkage with LTIP and CIPIS, but whose primary research objective is to find ways and means of raising money to invest in the arts (and heritage), rather than the specific investment decisions. Naturally, investors in the arts are interested

in the potential impact of their funding decisions, so that the information that LTIP and CIPIS could generate would provide major selling points to potential funders. LTIP and CIPIS are essentially involved with the prediction, planning and evaluation of the allocation of resources decisions. The Task Force on Funding of the Arts is responsible for finding the level of total resources required.

The Executive Director of the Task Force on Funding to the Arts informed us about the extent of the research plans of his group including both supply-side and demand-side analysis involving past, present, and future trends of both consumers, artists, and investors (governments and others). There appears to be a good deal of complementarity between the proposed research of the Task Force and the research outlined in LTIP and CIPIS.

3.7 Refined List of LTIP Objectives

The examination of the conceptual framework of LTIP allows us now to specify more precisely its objectives:

- to provide consistent, timely, and readily accessible data on the current stock of non-capital factors of production for the performing arts and heritage sectors (DESCRIPTIVE).

- to predict the potential impact of various combinations of input factors (including capital) on a number of economic, social, cultural, and other goals (PREDICTIVE).

- o to explain the observed relationships between variables, evaluate real vs. predicted outcomes, and offer refinements/remedies to the decision-maker (ANALYTICAL/EVALUATIVE).

LTIP is not a decision model, but rather an adjunct to existing systems which provides the decision-maker with an expanded base of information, relationships, etc. from which to make a more informed choice.

LTIP is not an ideologically neutral machine since it will encompass the past biases, customs, habits, etc., of investors in the performing arts and heritage sectors. It is also not a technocratic decision-making tool since there is ample scope for introducing attitudes, beliefs, tastes, and preferences on both the supply and demand sides, as well as in the investment strategy.

3.8 Potential Range of Users and Applications

An integrated information system to assist in the making of investment decisions with respect to the levels and mix of input factors into the production function for the performing arts and heritage sectors would clearly be of use to three major groups of interested parties:

1. Investors

   - the Department of Communications (all levels of policy makers and planners in the performing arts and heritage sectors)
   - the Canada Council
   - other federal agencies investing in culture including National Museums, Secretary of State, External Affairs, etc.

- other federal agencies investing in related physical and human capital including CEIC, Canadian Government Office of Tourism, DRIE
- provincial cultural agencies
- municipalities
- private sector sponsors (corporations and individuals)

2. Suppliers

- creative and performing artists
- curative and interpretive specialists
- impressarios, producers, technical support
- administrative support personnel
- umbrella arts and heritage organisations
- professional performing arts organisations, visual arts and heritage institutions
- landlords and facility managers
- suppliers of consumable goods and services
- suppliers of secondary/indirect goods and services

3. Users/Observers

- the public audience
- academic and research community, including Statistics Canada
- financial/market analysts
- media

The range of applications can be broadly grouped to correspond with the three types of LTIP objectives outlined in 3.7 viz descriptive, predictive, and analytical/ evaluative. In Chapter five we will outline a detailed

research agenda that will specify sets of research components divided into three categories: supply/human capital; demand/market studies; organisation/industry studies.

At a general level and depending on the choice of elements to be included in the model, LTIP could be used for:

- o factor-specific (micro) modelling: e.g., relative supply and demand of particular types of performing artists; regional supply and demand; factor pricing;

- o general planning (macro) modelling: the development of integrated investment planning in labour, capital (with CIPIS), management, marketing and promotion, etc.; and

- o monitoring and evaluation (meso) modelling: empirical review of the results (performance) of investment planning in the short-, medium-, and long-run.

LTIP might answer such questions as:

- o How many new dancers will be required in Canada between now and the year 2000?

- o What level of income supplement would be required to maintain a stock of actors/actresses at level 'X'?

- What level of "migration benefit" would have to be paid to increase the number of performers in province 'Y'?

- What would be the demand for professional curators of a program to increase art galleries in smaller communities?

- What would be the potential impact on box-office revenues of a joint federal-provincial marketing and promotion program for opera?

- What should be the proper split of investments for government 'Z' between low-risk, medium-risk, and high-risk investments to ensure a level of 'K' "cultural experiences" in a particular community, region, etc., by year 1995?

- What induced investments would result from specific government tax measures (i.e., tax expenditures) for new technology in the performing arts or heritage sectors?

Obviously, the list is almost endless and restricted only by the needs and imagination of the policy maker.

3.9 Position of LTIP within the Decision, Policy and Planning Context

As demonstrated in the previous section, there is enormous scope for the range of users and applications for LTIP. Since there are so many users, it would not be practical to limit the points of entry for LTIP into the decision-making process. In fact, the strength of LTIP is its ability to allow apparently competing groups to make decisions on the same information.

Common to all decision makers is the need for an overall operating plan (business plan) which outlines:

(i) the current state of affairs of the entity - its organisation and structure, its objectives/ strategies, its assets, the nature of its production function by product, a description of its markets, etc.,

(ii) a description of a number of potential future scenarios at both the input and output level, and

(iii) a set of future goals/objectives with implementation strategies and actions and measurable indicators of performance.

Appendix A expands this notion of operating plan/business plan further to identify potential research elements.

Practically, for the Department, LTIP would be used for long-range planning as part of the annual programming and budgeting exercise, including the

establishment of meaningful and measurable performance indicators (OPMS) which would be verified by audit and analysed through program evaluation.

For shorter-term requirements, e.g., specific investments, grants, contributions, etc., LTIP would provide an additional analytical tool for policy advisors based on a system-wide examination of potential impact.

3.10 Conceptual Feasibility

In this chapter, we have examined the questions of feasibility from a number of points of view.

We conclude the following:

- **a logical, scientific model can be developed to specify causal relationships between government investment in the performing arts and heritage sectors and their results (outputs),**
- **there are a number of current performance indicators that can be utilised as well as new measures which can be developed,**
- **data for the model can be collected,**
- **there are a broad range of potential users and applications,**
- **LTIP is compatible with other on-going projects in the area of cultural investment,**

- **LTIP can be accommodated into the decision, policy and planning context.**

Based on these conclusions, we are confident that LTIP is technically and practically feasible and that it would be worthwhile to proceed further to examine more specific details of its potential.

4.0 DATA REQUIREMENTS FOR LTIP

4.1 Inventory of LTIP concepts by Major Sector

In order to perform the applications we have posited (descriptive, predictive, analytical/evaluative), LTIP must contain information in seven major areas:

- the current characteristics of the supply of factors of production - capital (from CIPIS), labour, managerial/organisational expertise, marketing and promotion, internal administration,
- an historical input/output model for the factors of production in the performing arts and heritage sectors,
- the quality of the current factors of production,
- the potential and effective public demand for products/programs in the performing arts and heritage sectors,
- induced demand of performing arts and heritage products/programs, and
- organisational, industry, and market structure of the performing arts and heritage sectors,
- the historical pattern of funding assistance and potential future demand.

In the following section, we will review the data requirements of LTIP and indicate the sources of existing data or if new data is required.

4.2 Existing vs. New Data Requirements

For the six major conceptual areas the following tableau indicates, in summary fashion, the types of information required and their availability.

Information Requirement	Source
A. Current Supply of Factors of Production	
i) Capital infrastructure - quantity, capacity, financing, current value, ...	CIPIS will provide
ii) Human capital - quantity, income	Statistics Canada/Canada Council
iii) Managerial/Organisational characteristics	Canada Council/Statistics Canada
iv) Marketing and Promotion	Canada Council (to 1982)
v) Internal Administration	Canada Council (to 1982)
B. Input/Output Model for Factors of Production	
i) Inventory of secondary industry inputs	Statistics Canada (late 1985) for non-human capital
ii) Multiplier effects	- human capital - new data required - marketing and promotion - new data required
C. Quality of Current Factors of Production	
i) Capital	CIPIS will provide
ii) Human Capital - training, capacity, talent	new data required
iii) Managerial/Organizational expertise	new data required
iv) Marketing and Promotion	new data required
v) Internal Administration	new data required

Information Requirement	Source
D. Potential and Effective Demand for Performing Arts and Heritage Sector Products/Programs	
i) Effective Demand - quantity, income, location	Canada Council/Statistics Canada
ii) Potential Demand - new market development, secondary products, exports	new data required
E. Induced Demand of Performing Arts and Heritage Sector Products/ Program	
i) Indirect Demand - related products, and services	new data required
F. Organisational, Industry and Market Structure for Performing Arts and Heritage Sectors	
i) Corporate objectives - profit/non-profit, growth, showcase, etc.	new data required
ii) Financing Methods - self-supporting, grants, re-investment, etc.	Canada Council/Task Force on Funding of the Arts
iii) Combinations of Factors of Production (esp. Capital/labour)	new data required
iv) Impact of Technology	new data required
v) Economic and Non-Economic Barriers to Competition - collective bargaining - tax/tariff/regulatory/legislative - market information - opinions/attitudes/tastes - accessibility - equity	new data required
vi) Competition - between products - with other industries	new data required new data required
G. Investment Patterns	
i) Historical - federal, provincial, municipal	Canada Council/Statistics Canada
ii) Future investment intentions	Task Force on Funding to the Arts

Information Requirement	Source
G. Investment Patterns Cont'd	
iii) Treatment of risk, rate of return, pay-back period	new data required
iv) Private Sector	new data required
v) Other induced investment (i.e., plant re-locations, skilled worker migration, etc.)	new data required

Clearly the major areas of missing information for the model include: the supply and quality of human capital and their training requirements; the linkages between capital and labour, as well as the impact of technological change; the quantity and quality of managerial expertise, marketing and promotion, and internal administration and the impact on quantity (and quality) of output; market studies on effective demand and constraints (supports) to new demand; secondary and induced impacts of performing arts and heritage products and programs.

In addition, for effective use of the model policy data on the treatment of risk, rates of return, and pay-back periods are required for the federal government as well as other potential investors.

4.3 Measurement Issues

It is important to consider three important measurement issues. Validity and reliability deal with the quality of measurement and the correspondence between empirical indicators and the underlying logic concepts.

Practicality involves the more pragmatic elements of measurement including time, cost, and quantity of information.

Validity refers to whether or not the indicator measures the concept it was intended to measure. A range of techniques ranging from simple face validity methods to more sophisticated construct validation techniques are possible. Construct validity techniques insert the variable in question into a series of hypothetical models to see if it performs (i.e., relates to) other variables in a theoretically plausible fashion. Predictive validity relates a known criterion measure to a measure of unknown quality in order to assess the validity of the latter measure.

Reliability refers to intersubjective repeatability of results. This can be crudely assessed through an item by item analysis of variances. More sophisticated test-retest, split-halves and parallel forms methods might be considered for key data items.

Practicality involves the comparison of the time, cost, and physical resources required to generate data with their potential usefulness in the model. In the sections that follow, we will examine methods for increasing the practicality of measurement while maintaining the validity and reliability of the data.

4.4 Definition of Performance Indicators

It is well documented that properly constructed summary measures have demonstrably superior reliability (and validity) to single indicator measurement models. In LTIP, some of the key concepts amenable to summary measure include:

1. Quality of Factors of Production (esp. Human Capital)

   - o the assessment of the current and future qualitative worth of creative performing artists and heritage professionals could be related to years and levels of training, works performed/performances given, and other factors.

2. Potential Demand

   - o overall participation levels can be scaled from a variety of perceptual and behavioural indicators, either at an aggregated level (e.g., overall "global" participation) or at more specific levels (e.g., participation at museums/heritage sites).

3. Types of Performing Arts Organisations or Heritage Institutions

4. Managerial Form/Capability of Performing Arts Organisations or Heritage Institutions

5. Attitudes towards Risk, Rate of Return, Pay-back Period

   - o by type, quantity, and value of financial support (e.g., loan, grant, indirect payment, etc.)

6. Secondary and Induced Impacts of Investment

   o by selected market transactions

7. Cultural Value

   o non-economic factors such as excellence, identity, pride

8. Social Value

   o participation, accessibility, equity, regional balance, time-use

In creating summary measures, the analyst may employ a range of inductive and deductive analytical techniques. Fortunately there is a good range of previous research in this area from earlier studies such as CIPC (1980) and the 1983/84 SPCI evaluation.

4.5 Levels and units of Data Assembly

To make the potential range of applications and users for LTIP as broad as possible we propose that information be collected at the facility/organisation level, at the community level (15,000 +), at the level of the individual artist/heritage professional, and at the level of the individual investor.

4.5.1 Supply/Quantity

1. Capital
   - o major element of CIPIS but extended down from communities of 25,000 + to a lower limit of 15,000 + including:
     - quantity of primary and secondary facilities (number)
     - infrastructure capacity and configuration (number)
     - facility organisation (type)
     - facility financing - original sources, annual capital and operating costs, (dollars and financing sources)

2. Labour
   - o by arts or heritage discipline
   - o quantities, income, location/mobility, capacity (i.e., full-time vs. part-time), transferability of skills (numbers, dollars, infrastructure, days/months available)

3. Management Structure/Expertise
   - o by organisation by arts or heritage discipline
   - o by management objective: general, production, financial, i.e., fund-raising (dollars managed)

4. Marketing and Promotion
   - o by organisation by arts or heritage discipline

5. Internal Administration (dollars managed)

4.5.2 Supply/Quality

1. Capital
   - o again using extended CIPIS data to include:
     - physical condition (% utility)
     - renovation/upgrading needs and costs (dollars)
     - impact of technology (productivity increase measures)

2. Labour
   - o by arts or heritage discipline
   - o level of training (years, costs of training)
   - o critical and/or market acceptance of cultural product (attendance, prizes/critical reviews)

3. Management Structure/Expertise
   - o relative to economic and critical performance

4. Marketing and Promotion
   - o relative to economic and critical performance

5. Internal Administration
   - o relative to economic and critical performance

4.5.3 Demand/Market

Effective Demand (using CIPIS where possible) for both audience (attendees) and non-attendees:

- o participation rates, cultural expenditures for selected performing arts and heritage "products" - by discipline.

- tastes/attitudes/opinions/preferences of consumers (levels of preference/satisfaction),
- accessibility to cultural goods and services (by distance),
- price (elasticities of demand),
- availability of entertainment/leisure alternative opportunities (by product substitute),
- background household characteristics (location, income, education, occupation, life-cycle stage, ethno-linguistic composition).

Potential Demand

- based on increased stock of capital, labour and other production factors,
- based on number of potential events (performances, exhibitions, etc.).

Demand for Secondary Products/Services

- by cultural product/program
- by selected industry
- induced income, employment

(Some problems in direction of causality (e.g., do theatres induce tourism or does tourism induce theater attendance?) may require more aggressive data collection techniques.)

4.5.4 Investment Patterns

- o by condition of current factors of production
- o by type of investor, value of investment, risk, expected return, pay-back period
- o induced investment - by motivation, value of investment, type of investment, type of investor, risk, expected return, pay-back period
- o by non-economic factors:
  - regional considerations
  - federal/provincial considerations
  - indentity/sovereignty

4.5.5 Organisation/Industry/Market Structure Data

For individual performing arts organisations or heritage sectors, a series of case studies to detail:

- o Corporate Structures (objectives, types of product, suppliers, ...)
- o Management Organisation and Effectiveness (paid/unpaid, objective attainment, ...)
- o Financial Planning and Management (profit/loss)
- o Marketing and Promotion (dollars spent, media/techniques)
- o Training Requirements

- o Research and Development
- o Funding Sources

For broader industry and market groupings, detailed measurements must be made of economic and non-economic impacts of:

- o tariff and non-tariff barriers
- o tax structures
- o legislation/regulation

These institutional constraints (supports) must be studied on an case-by-case basis to determine macro and micro implications for the model.

4.5.6 Other data

Finally for purposes of comparison for equity on allocative efficiency objectives, additional data may be required for other industries such as:

- o levels of income
- o expected rate of return on capital invesment
- o return on marketing and promotion industry
- o capital/labour efficiency ratios

These data requirements are necessary for the establishment of policy decisions rather than for the functioning of the model.

4.6 Data Base Management Considerations

System design and configuration is crucial to a practical, effective LTIP. Apart from usual quality control

procedures such as careful transcription and editing of hard copy and 100% verification during translation of data to machine readable format, the final system file will require certain essential features. These system design features will vary depending upon the way the system will be utilised. Our assumption is that a completely documented system will be maintained on a "turnkey" basis on DOC's Honeywell at Shirley's Bay.

EDP requirements will vary according to the type of LTIP application involved. One major output would be a descriptive summary of the data base at a macro level. Another type of output would be factor and investment statistical outputs. Finally special topic projects, such as factor combination evaluations could be produced as required.

Some of the major system design considerations for LTIP include the following:

(1) Full Documentation - ease of use. The system should be completely documented (variable and value labels, content, transformations, missing values, etc.). This documentation should permit a new user to utilise the system from available records and documentation.

(2) Hierarchical DBM - The system file must permit several layers or levels of aggregation in order to perform the various micro-meso-macro modelling exercises. A hierarchical subfile structure (developed from an AGGREGATE routine) will permit this analytical flexibility.

(3) Complete Analytical and Reporting Capabilities - A packaged software should be employed which allows the full range of descriptive and explanatory statistical treatments and a report generator for producing immediately consumable customised reports (suitable for non-technical decision-makers).

The following requirements can all be met and exceeded by SPSS (Statistical Package for the Social Sciences) version X.

4.7 Analytical Considerations

4.7.1 Modelling Data Treatments

A complete description of the full range of analytical techniques is beyond the scope of this report. With a rich data base such as LTIP (in conjunction with CIPIS), the limitations are defined only by creativity, schedule and (machine/programming) resources available to the various users. It should be noted that LTIP and CIPIS combined will probably contain several hundred variables. The problem for the analyst is to provide effective statistical treatment which distills practical meaning from this vast array of information. The principal analysis tasks are derived from the core analytical modelling problems (micro, meso, macro) and the range of sub-issues contained within these models. It should be emphasised that in order to fully exploit the analytical possibilities of LTIP, sufficient project resources should be allocated to this key task.

4.7.2 Data Quality Assessment

After careful purification and editing of the LTIP system files (employing range and consistency edit procedures) it will be useful to assess the overall quality of the data base. A detailed field report on data collection procedures will provide a preliminary assessment of data quality from field managers' opinions. An analysis of missing data along with decisions regarding assigning missing values is an initial consideration.

Another important preliminary analysis will be to assess sampling biases and data generalisability. This will entail a series of comparisons of survey sample statistics to known population parameters. Where discrepancies exist, a weighting system(s) will be developed, where sufficient users exist (the weightings based on the reciprocals of the disproportionalities) which restores the data base to an unbiased (EPSEM) form. It must be possible to operate system files in both weighted and unweighted forms since different treatments require different forms (e.g., statistical significance tests should be based on the unweighted file).

5.0 RESEARCH COMPONENTS

In Section 4.1, we identified the seven principal areas of potential applications of LTIP. To re-cap:

i) current supply of factors of production,

ii) input/output model for factors of production,

iii) quality of current factors of production,

iv) potential and effective demand for products/programs,

v) induced demand -- secondary products and services,

vi) organisational, industry, and market structure of the performing arts and heritage sectors, and

vii) historical funding (investment) patterns and potential future demand.

We now propose to reduce these seven areas to three distinct research components:

i) Supply -- especially human capital/labour studies,

ii) Demand -- direct and secondary, and

iii) Organisational Studies -- including investment intentions.

Section 4.2 outlined the broad information requirements (and sources) for a completely comprehensive LTIP system. On page 40 we identified the major information elements that were missing. In Section 5.1 that follows, we propose a more restricted research agenda that will capture much of the missing information without unduly impairing the analytical capability of the model.

5.1 Individual Components

It is difficult at this stage to specify exact details of design, costing, and scheduling for the series of studies identified in our research plan that follows. Hence, the information is preliminary and crude in nature for purposes of estimation only. Nevertheless, it should give a proper order of magnitude of the work required.

5.1.1 Detailed System Design

An initial step before proceeding to the substantive research components is the requirement for a detailed system design.

Study #1 -- Detailed System Design

Tasks

- a detailed specification of the LTIP data matrix
- refinement of CIPIS survey instruments

Methodology

- expansion of CIPIS design

Costs

- $25,000 (all costs are approximate)

Timing

- approximately 20 working days

5.1.2 Human Capital/Labour Studies/Supply

Study #2 -- Labour Force Survey

Tasks

- collection of current data on selected performing arts and heritage occupations (especially creative and technical)
- income
- geographic distribution
- training needs
- career expectations (income, years of employment, etc.)
- equity (vs. selected occupations)

Methodology

- a survey through performing arts organisations and
- heritage sectors
- a residual sample through professional schools and of the unemployed

Costs

o survey of performing arts organisations	$50,000
o survey of Heritage sectors	$20,000
o residual survey	$35,000

Timing

- three months

Study #3 -- Special Labour Survey - Writers, Crafts Persons, Visual Artists

Tasks

- a special labour survey of writers, crafts persons, and visual artists - numbers, income, location, capacity (full-time vs. part-time)

Methodology

- a survey based on samples derived from Statistics Canada, national associations, and previous studies (n:200 each for writers, crafts persons, and visual artists)

Costs

- $40,000

Timing

- three months

5.1.3 Demand/Market Studes

Study #4 -- Effective Demand

Tasks

- determine the characteristics of attendees at performing arts and heritage events/ exhibitions
- determine geographic, demographic, income characteristics/market segmentation
- determine elasticity of demand (possibly through pricing experiments)
- determine tastes preferences, awareness/ motivations
- determine competing goods/services, time-use
- determine consumption/spending patterns

Methodology

- surveys (with sampling linked to CIPIS sampling) - sample stratified by discipline/ sector/season
- for performing arts organisations on-site exit surveys (n = 100)
- for heritage sectors on-site exit surveys (n = 50)
- possible co-operation with performing arts organisations and heritage sectors, i.e., self-administered mail-back

Costs

$80,000

Timing

- three months

Study #5 -- General Demand

Tasks

- to determine general population characteristics vis-à-vis performing arts and heritage in key municipal markets
- consumption patterns (direct and indirect related to performing arts and heritage
- tastes/preferences
- trade-offs (i.e., product substitution) at the community level
- elasticity of demand
- awareness/motivation

Methodology

- surveys (with sampling linked to CIPIS sampling) - sample stratified by discipline/ sector/season
- for performing arts organisations on-site exit surveys (n = 100)
- for heritage sectors on-site exit surveys (n = 50)
- possible co-operation with performing arts organisations and heritage sectors, i.e., self-administered mail-back

Costs

- $85,000

Timing

- two months

Study #6 -- Special Study of Rural Demand

Tasks

- determine characteristics of rural market
- tastes/preferences
- awareness/motivation
- elasticity of demand
- substitution effects
- impact of accessibility

Methodology

- special rural study: population 0-2,500; 2,500-7,500; 7,500-15,000

Costs

- $25,000

Timing

- three months

5.1.4 Organisational Studies

Study #7 -- Management/Organisational Case Studies

Tasks

- to determine general management methods, strengths, weakness
- to assess financial planning and management
- to assess marketing and promotion and
- internal administration

Methodology

- detailed case study approach (12 performing arts organisations, 6 heritage sectors)

Costs

- $30,000

Timing

- three months

Study #8 -- Industry Study/Microeconomic Analysis

Tasks

- to determine the nature of individual production functions
- to determine factor comination and substitution relationships
- to determine economies of scale
  to examine the "income gap" problem (so-called Baumol's disease)

Methodology

- based on performing arts organisations and heritage sector survey data
- follow-up in-depth interviews (12 performing arts organisations, 6 heritage sectors)

Costs

- $50,000

Timing

- two months

Study #9 -- Impact of Arts/Heritage Availability on Corporate Location Decision

Tasks

- to determine the importance of the availability of arts and heritage facilities in corporate decisions to move/remain
- impact on employee decisions
- attitudes towards funding of arts/heritage

Methodology

- self-administered survey (possibly piggy-backed onto the work of the Task Force on Funding of the Arts)

Costs

- $25,000

Timing

- three months

Study #10 -- Study of Umbrella Organisations

Tasks

- to determine intentions, attitudes, preferences of umbrella organisations with respect to growth in quantity, quality of supply of production factors (esp. labour)
- attitudes and intentions on effective and potential demand

Methodology

- survey of key umbrella organisations such as CCA, ACTRA, NABET, IATSE, etc.

Costs

- $45,000

Timing

- two months

Study #11 -- Integrated Analysis and Modelling

Tasks

- to develop a profile of need and demand by arts/heritage product, by region, by community, by organisation
- to develop a predictive model of return on investment by sector, organisation, community, region
- to develop a training program for systems users
- to integrate the model into the planning and decision process

Methodology

- various

Costs

- $75,000

Timing

- three months

5.2 Study Linkages and Integrated Analysis

It is clear that there are a number of linkages between studies in the proposed research agenda as well as with studies anticipated for CIPIS and the Task Force on Funding of the Arts. These linkages include:

- capital infrastructure and product/program
- product/program and labour supply
- capital infrastructure and effective demand
- quality of product and effective demand
- organisation/management structure and quality of product (also quantity of product)
- capital infrastructure, labour supply, quality of product, and investment decisions
- effective demand/potential demand and investment decisions
- organisation/management structure and investment decisions

The initial detailed design project (Study #1) would endeavour to exploit these relationships to ensure efficiency and economy in data collection.

5.3 Minimal, Moderate, and Maximum Research Packages

Since the 11 studies outlined in Section 5.1 represent a condensed research agenda for a full LTIP model, it is even more difficult to make judgement on what would be considered in a moderate and minimal package. Nevertheless, working backwards, we propose the following:

Maximum Package (Plan A)

- all eleven studies at a cost of $585,000

Moderate Package (Plan B)

- Studies #1, 2, 3, 7, 8, and 11 for a total value of $325,000

Minimal Package (Plan C)

- Studies # 1, 2, 8, and 11 for a total value of $235,000

5.4 Comparative Critical Evaluation of Costs and Benefits

If one looks at the dollar value of the federal investment in the performing arts and heritage sector, the number of jobs created both directly and indirectly, the multiplier effects on secondary industries, and the induced effects on other government and private sector organisations to make investments, even the cost of Plan A seems small.

Viewed from the standpoint of employment generation, if a more critical review of federal investment

decision planning results in the creation of 100 new jobs either directly in the performing arts or heritage sector or in secondary industries with an annual salary of $20,000, gross income created is $2,000,000 of which $500,000 would be returned through taxes assuming an average marginal tax rate of 25%. If the improvement of management standards resulted in a saving of $25,000 in 22 performing arts organisations or heritage sectors, or if more effective marketing and promotion techniques improved revenues by $10,000 in 55 performing arts organisations or heritage sectors, Plan A would be of benefit.

If new policy initiatives or tax considerations induced other governments and the private sector to invest an additional $550,000 in the arts/heritage sectors, the multiplier effect alone would make the initiative more than worthwhile.

Clearly without going into the field, it is impossible to say with complete certainty that even these modest impacts will occur. But, it is our considered judgement that any of the proposed plans (A, B, or C) will generate measurable benefits greatly in excess of their costs.

6.0 CONCLUSIONS, RECOMMENDATIONS, AND CAVEATS

The major conclusion from our work is that the development of a Long Term Investment Plan for the performing arts and heritage sectors is technically and practically feasible. For maximum efficiency and effectiveness, we highly recommend that LTIP be closely linked with the Capital Investment Planning Information System (CIPIS) currently being developed in the Department of Communications. In essence, the result would be a number of inter-linked factor specific information systems which could be used for descriptive, predictive/planning, and analytical/evaluative purposes. Ultimately the two projects should be merged into a single, consolidated Cultural Investment Planning System (CIPS).

Our major caveat is that both system designers and system users give full appreciation of the role of non-economic factors in any application of LTIP. There are many acceptable techniques for developing measures for these factors and they should be utilised to ensure validity of the outputs of the system.

Our second conclusion is that the impact of the performing arts and heritage sectors on direct income and employment, secondary industry and employment, as well as induced investment effects on government and industry is large enough to warrant significant research into the make-up of the production function of the performing arts and heritage industries and its potential impact.

A caveat here is that the system will require some form of on-going monitoring, and possibly some experimental testing and refinement to ensure that it is up-to-date.

Our third conclusion is that the federal government investment planning system would benefit from an application of business-like concepts such as risk, rate of return, pay-back period, in its investment decision process. While Treasury Board requires such an approach for major capital expenditure programs, policy planners and decision-makers would benefit from expanding this approach to non-capital investments, especially in the area of human capital.

Our fourth conclusion is that the Long Term Investment Planning model will be of use not only to the Department, but to a whole range of investors, producers and suppliers to the performing arts and heritage sectors, as well as to research analysts and other outside observers.

Our final caveat is that the potential benefits of the Long Term Investment Plan will not come about without a systematic marketing and promotion of the system, including manuals, workshops, factbooks (possibly subscriptions), and direct communication to systems users of results and new features of the system. We recommend that the Department make adequate provision for "selling" LTIP to all its potential users, so that it is a recognised planning instrument for key policy planners and decision-makers.

We recommend that the department proceed immediately with Study #1 -- Detailed System Design, and that a research agenda be chosen to encompass as many of the studies outlined in Section 5.1, taking into account the approved research plans of other complementary activities, principally CIPIS and the Task Force on Funding of the Arts.

Appendix A

Essential Elements of a Long Term Investment Plan for Performing Arts and the Heritage Sector

Appendix A

Essential Elements of a Long Term Investment Plan for Performing Arts and the Heritage Sector

Discussion	Research Elements
1. An investment plan whatever its time frame, whether for industry or government is only one part of a broader planning structure - a business plan or an operating plan	Business Plan/Operating Plan
2. The business plan outlines	
(a) the current organization and structure of the company (department), its operating objectives/strategies, its assets, the nature of its production function (description of factor inputs and their relationship) by product, a description of its markets (price levels, competitors, geography), revenues/sales	(a) By industry/product: - survey of organizational structures - inventory of current assets (capital, labour, systems, managerial expertise) - ownership of input factors/investment sources - relationships between production factors - return on comparative investments - market/demand, analysis (including marketing operations, distribution, pricing strategies, etc.) - performance data (level of output, sales, profit/loss)
(b) the business plan also includes a description of a number of potential future business scenarios (including assumptions) at both input and output level	(b) Forecast of future trends in - factor inputs - industry/product structure - market/demand - external stimuli/constraints -policies -market forces, e.g., competition, tastes -secondary industry -technology change

Discussion	Research Elements
	- secondary industry - technology change
(c) the business plan establishes a set of implementation actions which will maximize return to the firm in both economic and performance (effectiveness) terms, in the most efficient manner	(c) By industry/product - broad performance goals -type and level of output -return on investment -management of risk -long range planning - operating objectives -input factor combination -level of operation -security of factor supply

Appendix B

Literature Review

APPENDIX B
Literature Review

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