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附錄一 績效評估方法優點、限制與使用時機等分析說明

指標法

單指標法優點是方法簡便,缺點是單指標只反映期刊的一個特性,難以選出滿意的績效指標。多指標綜合篩選法：資料的綜合處理又分多種方法,如:求邏輯和法、加權平均法、模糊數學法、層級分析法、主成份分析法等。優點: 多個指標如果能合理地配合使用,可能得到較單指標更為滿意的結果。缺點是統計量多,計算複雜、工作量大。

問卷調查法

問卷調查法一般而言是最廣泛被使用的方法，因為其相對比較客觀，可以提供提供評估單位與被評估單位間良好溝通管道，特別是針對許多難以數量化之計畫此法評估配合專家訪談與座談，是可以提供一個有效度分別的方法。其缺點為無特定對象之計畫，樣本選取不易；研究結果受問卷調查設計與受訪者態度是否合作之影響極大；耗時耗費較多。

專利分析

專利是大型研究機構最重要成果與資產之一，其表現出技術領域發展方向、技術強度與知識累積可獲得的創新、可以直接衡量發明能力、技術創新能力與未來技術機會等，是各國評比技術優勢的一項指標，主要分析以專力數量與專利強度。其缺點為比較不適宜做不同領域/產業間專利產出效率之比較、難以真正做到專利品質之比較，針對非專利之營業秘密就無法進行。

其主要優點為可以提供較總體層次趨勢的分析。缺點為各國的專利體系並不一致，而且對於無法專利化或不願提出專利申請，寧願以營業機密保留的技術發明無法納入考量。最重要的是專利的取得，並不代表經濟上的成功，有時甚至不能代表技術上的成功。

個案研究方法

個案研究是對一個特定樣例或某個行為樣例的研究，它是對真實情境中的真實個體或團體的研究。個案研究具有廣泛的應用，包括評估個人和團體，還可以用於評估不同領域及不同單位。其特點，首先，它注重對與個案有關的事件進行深入細緻調查，以獲得豐富生動的資料，提供個案中事件的發展進程的詳細描述，從而對事件進行綜合分析。其次，研究者參與到個案中，重點研究特殊事件，注重對個體或研究機構的行為研究，探討他們對事件的知覺過程。最後，個案研究具有時間特性，可以用來確定個案的本質，可以通過某個時間點上特定情境中的個體與小組的特性、角色與功能，以及組織

結構等因素深入瞭解個案的內在特性。
個案研究法的類型有：

(1) 探索性(exploratory)個案研究，主要用於提出假設；
(2) 描述性(descriptiVe)個案研究，提供描述性的素材；
(3) 解釋性(explanatory)個案研究，檢驗理論；
(4) 評價性(evaluation)個案研究，它是對事物做出解釋和判斷。

也可以按研究物件將個案研究分為以個人為單位的個案研究和以團體為單位的個案研究。此外，還可以從觀察方法和觀察情境兩個維度出發對個案研究進行分類，觀察法包括結構式和非結構式，

優點：可瞭解整個研發、擴散到產生效益的過程，而且除了事先可以透過系統化的規劃與分析外，還可以瞭解許多非事先可以預期的效益，並可以因而瞭解類似計畫的關鍵性成功因素。所以（1）可作為形成關於行為的理論假設的起點，是臨床研究或研究罕有現象的有效途徑之一，能夠從大量資料中獲得一些獨特的特徵，這些獨特特徵可能是理解個案的關鍵。（2）可為挑戰一種理論假設提供反例。（3）通過提供個體行為的數值，完善對行為的一般規律的研究結果。（4）具有很強的現實性，結果更容易被人們理解，只要是用日常的和非專業的語言描述。（5）它能夠幫助人們理解和解釋其他相似的情境或個案（6）不一定需要一個研究小組，單個研究者也可以進行研究；（7）能夠包含和建立不希望的事件和未控制的變數。

缺點：(1)結果的普遍性及外部效度較差。(2) 因果關係的證明力度較弱，難以進行交叉檢驗，因此，容易出現選擇性偏差和個人的主觀性； (3) 取決於評估者之經驗、調查技巧、專業知識，容易產生觀察者偏差（4）成本高（5）不容易進行，特別是不易進行長期的觀察。

標竿分析

標竿（benchmark）最早指的是地理研究中用來測量相對距離前所必須先決定的某個參考點。在品質改善辭典中，標竿分析指的是同儕中最好(best-in-class)的成就(achievement)。這樣的成就會成為其他擁有相似作業流程的企業作為參考學習的典範。

標竿是 1970 年代末期由美國全錄公司（Xerox）開始採用並倡導的一種用來評估及改善一個組織的工作流程、產品或服務品質、營運績效等的管理方式，其作法經過倡導後，風行於各大企業體，結果也證明瞭運用此法的確能具體改善企業的營運績效。因此研究分析認為標竿分析是進行機構優勢與弱點分析的一項很有用的工具。標竿分析法並無統一固定的流程或模式，各組織可視其實際需求而有不同的作法，有全錄模式、IBM

模式等。標竿分析與管理既不複雜也不難實行。但它的確需要良好的規劃與嚴謹的流程規範。其優點為（1）確認競爭者中的最佳實務者，準確地確定企業的優勢與弱點提供了有力的方法手段和資料來源（2）可以用來改進企業的實務。（3）業績的計量提供了一個新的基礎，以最佳實務為標準計量業績，使各部門的目標確定在先進的水平之上，使業績計量具有科學性，起到指標作用。例如可以做國際比較，可以了解研究成果是否居世界領導地位。其缺點為（1）專家團隊組成不易、偏重在領域，非計畫（2）需要足夠的時間（3）資料之篩選不易（4）如何使被評者相信有需要改善的地方

比例分析法(Ratio Approach)

比例分析法利用各項指標值作相互之比較，如最大的產出與最小投入二者比較所得之值。概分為以下兩種比例法：

1. 財務比例法

由評估者依據個人主觀判斷，選取適當評估指標作為基準並賦予權數，利用已知的指標值相互比較計算出該受評估單位綜合評點，以點數高低評斷優劣。優點在數據可直接取自財務報表及各比率之意義明確、易懂。其缺點則是無法評估資源使用的效率性，一旦有部份指標高於其他要素，而某些部份指標較低時，便很難評定該要素綜合成果之優劣，而且亦無法處理多投入、多產出之企業形式，同時亦無法提供改善經營績效之指導。以財務比例分析法為基本原則，而應用於績效的方法，例如：線性加權綜合法、觀察比較法、集群分析法等。以財務比例法為基本原則，而應用於績效的方法，例如：線性加權綜合法、觀察比較法、集群分析法等。

2. 生產比例法

依實際投入人力、物力、財力之數值與產出之相對數值比較計算方式，相互比較衡量數值有實物量、金額、約當量、近似值等四種。優點在指標具系統性，計算不難，意義易懂，能提供作業效率資訊，可作較全面性的評估。其缺點同樣面臨無一客觀標準方法，處理多投入、多產出之企業形式，以衡量各要素之相對績效，以及對各效率指標仍無法提供改善經營績效之指導。以生產力衡量的績效評估方法，例如：經營五力分析法、生產力比例衡量法、迴歸分析法（Regression Approach）、超越對數生產函數法（Translog Approach）等。

平衡計分卡法

「平衡計分卡」（Balanced Scorecard）原始概念起源於 Norton Nolan & Co.（1991），再由 Kaplan & Norton（1992、1996、2001）修正並歸納出一個較完整之績效平衡計分

卡操作模式。主要是從四個不同觀點來衡量企業不同的業務狀態：1.財務觀點（financial perceptive）；2.內部企業程序觀點（internal business process perceptive）；3.創新與學習觀點（innovation and learning perceptive）；4.顧客滿意觀點（customer satisfaction perceptive）。企業在上述四方面的評估需要「願景」與「策略」的整合才有意義。平衡計分卡係將企業制定的策略與關鍵性績效評估指標相互結合，並在長期與短期目標下對財務性與非財務性，外部構面與內部構面，落後指標與領先指標，主觀與客觀面等績效指標間取得平衡。

1. 優點

可綜合量化及質化指標，同時進行內部、外部評估，並且可以有效地追蹤企業成功之因果關係，並促使企業活動與其整體策略目標相吻合（Mooraj et al.，1999）

(1) 可將所有關鍵性因素一併考量，整合相關資訊避免反功能性決策減少資訊超載，讓管理者有餘力在日常運作外，考量組織發展方面之事項。
(2) 將組織運作成果用作內部溝通、學習工具，而非僅例外管理之控制用途。

2. 限制：績效評估指標，必須透過專家賦予分數，不夠客觀公正。

3. 適用範圍：多項投入與單一產出的問題。

總要素生產力分析法

總要素生產力分析法(TOTAL FACTOR PRODUCTIVITY,TFP)，是美國諾貝爾經濟學獎得主羅伯特・索羅於 1957 年首先提出而得名，其解釋 1909 年至 1949 年美國經濟增長的決定因素，發現美國在這個時期的勞動者人均產出增長率平均為 1.81%，其中 1.49%的增長率得益于技術的進步，即有 80%的增長率是源自于技術進步。也就是說，索羅發現技術進步是美國經濟增長的首要決定因素，其次是勞動力的增長，最後才是資本積累。所以 TFP 主要將總體總要素生產力變動率分解為代表產業內技術進步的總要素生產力加權平均變動率與代表產業間技術進步的資源總配置效果，並進行總體與產業之間的生產力聯結分析。

該法因為發展很久，優點為運算簡單容易，理論淺顯易懂。可作統計上的檢定，具有客觀的效率值解釋能力。可作為評估企業生產力之綜合指標。缺點為須先推導生產函數。且投入與產出項須有相同計算衡量單位。需假設完全技術狀態，且無法提出效率改善目標值。無法分辨 TFP 變動是來自技術進步或來自技術效率之變動。適用於解決多項投入與單一產出的問題。

迴歸分析法 (Regression Analysis)

迴歸分析法假設自變數與依變數間的函數關係為線性、二次或其他型式，運用最小平方法，找出自變數與依變數具因果關係的迴歸線。然後比較各評估對象與迴歸方程式的殘差項差異，評估彼此之間的效率高低。

1. 優點

(1) 利用函數表達投入與產出關係，分析嚴謹客觀。

(2) 具有統計分析學理的基礎，分析結果較科學化。

(3) 在有限的樣本限制情況下，不會將無效率單位當成有效率單位，可作為比較差異與預測工具。

2. 限制

(1) 需先假設自變數與依變數具有線性的函數關係。

(2) 在受評估單位樣本數較少時，無法找出最具效率之單位。

(3) 無法同時處理多項投入與產出的問題，須有詳細量化資料，殘差項需假設為常態分配。

(4) 迴歸分析結果呈趨中(centraltendency)，無法確切指出組織間何者有效率、何者無效率。

3. 適用範圍

(1) 適用於多項投入與單一產出。

(2) 預測自變數與應變數間的函數關係與平均值之差異比較。

生產前緣法(Production Frontier Approach, PFA)

生產前緣法利用經濟學的生產函數法，找出受評估單位相關的生產函數，進而衡量受評估單位的生產力。概分為兩種評估函數：

1. 超越對數生產函數法

Translog 成本函數係有母數法的效率衡量，適用於企業的長期成本分析，找出其最適生產函數，資料型態為時間序列。Nishimizu and Page (1982)運用效率觀念，以超越對數型式之生產函數找出完全有效率的最大產量，其與實際產量的比值即得效率，即超越對數生產函數法(Translog Production Approach)。

2. Cobb-Douglas 生產前緣線

Cobb-Douglas 生產前緣線(Cobb-Douglas Production Frontier)亦以有母數法衡量效率，適用規模可變的長期結構下的財貨產值分析，並利用迴歸方式使觀察值與推估值間知覺對離差最小，以求出函數中之參數值。

3. 優點

(1) 運算簡單可運用統計檢定的方法，便評估結果更具客觀。

(2) 使用限制條件較少，數理結構簡單且經濟意涵明確。

4. 限制

(1) 所有投入與產出項須皆可量化，無法同時處理多項投入與產出問題。

(2) 須先假設為生產函數型態，且只有單一項產出。

(3) 殘差項需假設為常態分配，否則無法求出生產函數。

5. 適用範圍：多項投入與單一產出問題。

隨機性前緣法(Stochastic Frontier Approach, SFA)

隨機性前緣法說明生產無效率的原因除了考量個別廠商技術或管理差異所造成，尚必須考量廠商在實際生產過程中亦會受到一些隨機因素的干擾。因此生產無效率必須考量兩部分，一為技術無效率，即技術或管理差異所造成的無效率，另一部分則為隨機所造成。

1. 優點

(1) 考慮非廠商所能控制的隨機性因素。

(2) 評估較能接近實際生產狀況。

2. 限制

(1) 隨機因素考量難以量化，必須考量機率分配之假設。

(2) 需有較多觀測點，參數的估計值才會有較高的準確度。

3. 適用範圍

投入與產出之間存在不確定因素的狀況。

多準則決策(Multiple Criteria Decision Making, MCDM)

多準則決策在運用前必須先確定要評估的組織其效率是由多項因素組成，再依其處理的問題設定為多屬性(multiple attributes)或多目標(multiple criteria)的各種形式，為一衡量多項投入與多項產出效率的良好方法。

1. 優點

(1) 評估效率時，可考量多屬性、多目標，符合實際狀況。

(2) 可解決不確定因素。

2. 限制

(1) 準則間相對重要性之權數值決定相當困難。

(2) 處理多項投入及產出項，不易客觀給予各屬性上分數及權數值。

(3) 無法提供改善的建議。

3. 適用範圍

處理多項投入與多項產出之決策性問題。

資料包絡分析法(DEA)

DEA 屬於前緣推論法的一種，其 DMUs、投入/產出變項選擇與效率衡量有密切相關。在進行實證分析時，其通常包含下列分析結果：

(1) 效率值分析：瞭解造成無效率 DMUs 之原因。

(2) 參考群體分析：作為無效率 DMUs 競爭比較之參考。

(3) 差額變數分析：顯示無效率 DMU 之改善方向與幅度

(4) 目標改善分析：提供無效率 DMU 之改進水準。

另外在運用 DEA 其程序上要注意為；（1）定義並選擇進行分析之 DMUs：運用 DEA 除須先找出一組具同質性的 DMUs 外，尚須確認 DMUs 間差異。但愈多 DMUs 進行分析，不僅會使同質性降低，而且分析結果亦會受外生因素影響，故可運用「DMUU 之數量至少應為投入與產出項目個數總合的兩倍」的經驗法則(Golany & Roll, 1989)，決定 DMUs 數量。另須配合研究目的及所需 DMUs 數量，決定研究期間的長短。若某 DMU 偏離，則須去除極端樣本。（2）決定攸關且適切的投入與產出變數。

初步選擇時，考慮的範圍愈廣愈好。但如果引入大量變項，會釋放 DMUs 間的大部分差異，導致多數 DMUs 會具高效率，而失去評估的意義。一般而言，模式中投入與產出變數之選擇可依相關研究文獻、管理經驗判斷篩選法、非 DEA 之數量方法(如因素分析 factor analysis)及敏感度分析實施變數篩選。

其優點為：

(1) 可以同時處理多重投入與產出項，容納不同計量單位的產出與投入項。

(2) DEA 是求得效率前緣，而非平均值，其結果是一綜合指標，可同時評估不同環境下 DMU 之效率。

(3) DEA 模式之效率值為一個單一的綜合相對效率指標，可以瞭解單位資源使用狀況，進而建議管理者決策時之參考。

(4) 投入產出加權值由線性規劃產生，不受人為主觀因素之影咎，對每個 DMU 能符合公平的原則。

(5) 同時處理定性(qualitative)與定量因素(quantitative)

(6) 不需設定投入與產出函數關係。

(7) 不用事先設定投入與產出的權數，因此不受人為主觀的因素影響可持公正客觀。
(8) 可以因應受評估單位中的不可控制因素而做調整。
(9) 可處理模式中之類別變數(categorical variables)存在問題。
(10) 必要時可容許主觀判斷。
(11) 為柏拉圖(Pareto)最佳化。
(12) 相對有效率之 DMU 需滿足產出與投入比為 1 之嚴格要求
(13) 可提供相對無效率的單位產出不足或是投入過多的資訊。

DEA 並非是萬靈丹，其理論缺點或限制如下為：

(1) 由於是非隨機方式，所有投入/產出的資料都必須明確且可衡量，若資料錯誤將導致效率值偏誤。
(2) 受評估對象之間的同質性必須高且儘量採用正式資料，否則衡量的效果不佳。
(3) DEA 模式所得到的結果為相對效率，非絕對效率，其用途不是在確定投入或產出的單位價值，而是用來衡量效率。
(4) 對資料極具敏感，亦受到錯誤極端值的影響。
(5) DMU 之個數至少為投入與產出項個數和之兩倍，否則 DEA 無法強而有力區隔有效率單位。
(6) DEA 計算任何一個 DMU 之其效率值，須建立一個線性規劃式。因此，當 DMU 與投入產出項個數很大時，線性規劃式與運算求解則變為較費時與複雜。但 DEA 軟體可以解決此類問題，如 DEA Solver 軟體。

為能有效運用 DEA 至實際問題上，Golany and Roll(1989)提出一系統化的 DEA 應用程序整體哇架構，該應用程序僅能作為一般化準則，實際應用時，尚須配合研究目的調整。

使用 DEA 其步驟主要如下：

(1) 相關研究文獻
   1. 利用網路資料庫，蒐集國內、外期刊論文與碩博士論文
   2. 利用研究機構圖書資料系統，蒐集國內、外研究報告。
(2) 判斷篩選程序
   1. 所有變數必須與 DMU 有關。
   2. 變數是否與欲達成的目標有關。
   3. 變數資料儘量取得且具有公信力
(3) 非 DEA 量化方法(Non-DEA Quantitative Methods)
   1. 變數可否用數量價值衡量，如以經費、人數或數量等作為衡量單位。
   2. 同向性(Isotonic)假設。DEA 同向性假設，係指增加任何一項投入要素並不會導致任一項產出要素減少。變數是否與欲達成的目標有關，可以相關分析來檢視此一假設。
   3. 將所得到的變數區分為投入項與產出項，所使用的資源影響該 DMU 之營運者可

視為投入項；產生可衡量的利益則視為產出。

(4) 敏感度分析

1. 不同投入與產出組合。
2. 投入與產出變數的權數限制(weight restrictions)。

DEA 因為在營運效率方面有其優勢，過去因為計算比較繁雜，所以應用上雖然有許多研究指出其可行性與優勢，仍相對比較不被採用，2000 年後許多專業人士開始撰寫相關應用套裝軟體，使得 DEA 被實務上使用比較可行；孫遜（民 93）在研究相關市場上之 DEA 套裝軟體可以在個人電腦上使用如 Banxia Frontier Anlalyst、DEA-Solver、IDEAS、OnFront 及 Warwick-DEA 等後，經研究分析比較綜合優先值後指出：DEA-Solver 最佳，Warwick-DEA 次之 Banxia Frontier Anlalyst 第三。敏感度分析顯示，沒有任何一個軟體具有絕對優勢。當模式選擇與解答分析準則非常重要時，DEA-Solver 最佳。當資料管理、視覺功能與報告產生準則非常重要時，Banxia Frontier Analyst 最佳。

附錄二 問卷資料

一、各考量項目相對重要性之比較（每一行請選一個格子劃勾「∨」）

對每一個成對比較需設計問卷，在 1-9 尺度下，讓決策者或決策群體的成員填寫（勾劃每一成對要素比較尺度）。就以評選評估準則下，三項重要的構面成對比較問卷及 AHP 評估尺度意義及說明如下表。

敬請兩兩相比，勾選以下各考量項目之相對重要性比例。

	相對重要性比例（9 最大、1 最小）																
	9:1	8:1	7:1	6:1	5:1	4:1	3:1	2:1	1:1	1:2	1:3	1:4	1:5	1:6	1:7	1:8	1:9	
智慧財產權																		技術性服務
智慧財產權																		一般性服務
技術性服務																		一般性服務

針對研發機構績效指標之「**智慧財產權**」，敬請兩兩相比，勾選以下各考量項目之相對重要性比例。

	相對重要性比例（9 最大、1 最小）																
	9:1	8:1	7:1	6:1	5:1	4:1	3:1	2:1	1:1	1:2	1:3	1:4	1:5	1:6	1:7	1:8	1:9	
專利																		論文
專利																		研究報告
論文																		研究報告

針對研發機構績效指標之「**技術性服務**」，敬請兩兩相比，勾選以下各考量項目之相對重要性比例。

	相對重要性比例（9 最大、1 最小）																
	9:1	8:1	7:1	6:1	5:1	4:1	3:1	2:1	1:1	1:2	1:3	1:4	1:5	1:6	1:7	1:8	1:9	
技術移轉																		技術合作開發
技術移轉																		外界委託研究
技術移轉																		委託外界研究
技術移轉																		技術引進
技術合作開發																		外界委託研究
技術合作開發																		委託外界研究
技術合作開發																		技術引進

外界委託研究																	委託外界研究
外界委託研究																	技術引進
委託外界研究																	技術引進

針對發展生物科技產業之「**一般性服務**」，敬請兩兩相比，勾選以下各考量項目之相對重要性比例。

	相對重要性比例（9 最大、1 最小）																
	9:1	8:1	7:1	6:1	5:1	4:1	3:1	2:1	1:1	1:2	1:3	1:4	1:5	1:6	1:7	1:8	1:9	
工業技術服務																		人員代訓
工業技術服務																		研討會
工業技術服務																		科技展覽
工業技術服務																		定期性刊物
人員代訓																		研討會
人員代訓																		科技展覽
人員代訓																		定期性刊物
研討會																		科技展覽
研討會																		定期性刊物
科技展覽																		定期性刊物

附註：AHP 評估尺度意義及說明表

評估尺度	定　義	說　明
1	同等重要 （Equal Importance）	兩比較方案的貢獻程度具同等重要性＊等強（Equally）
3	稍重要 （Weak Importance ）	經驗與判斷稍微傾向喜好某一方案＊稍強（Moderately）
5	頗重要 （Essential Importance）	經驗與判斷強烈傾向喜好某一方案＊頗強（Strongly）
7	極重要 （Very Importance）	顯示非常強烈傾向喜好某一方案＊極強（Very Strong）

9	絕對重要 （Absolute Importance）	有足夠的證據喜好某一方案＊絕強（Extremely）
2、4、6、8	相鄰尺度之中間值 （Intermediate Values）	須要折衷值時

本院績效衡量指標權重問卷調查結果意見反應

親愛的工研院先進同仁您好：

本人曾向本院各單位發出問卷，詢問關於年度各類績效指標權重之意見現已完成資料之分析，僅提供各單位參考指正。並藉此徵詢各單位之反應或建議，以期能進一步獲得大家的共識。

敬頌

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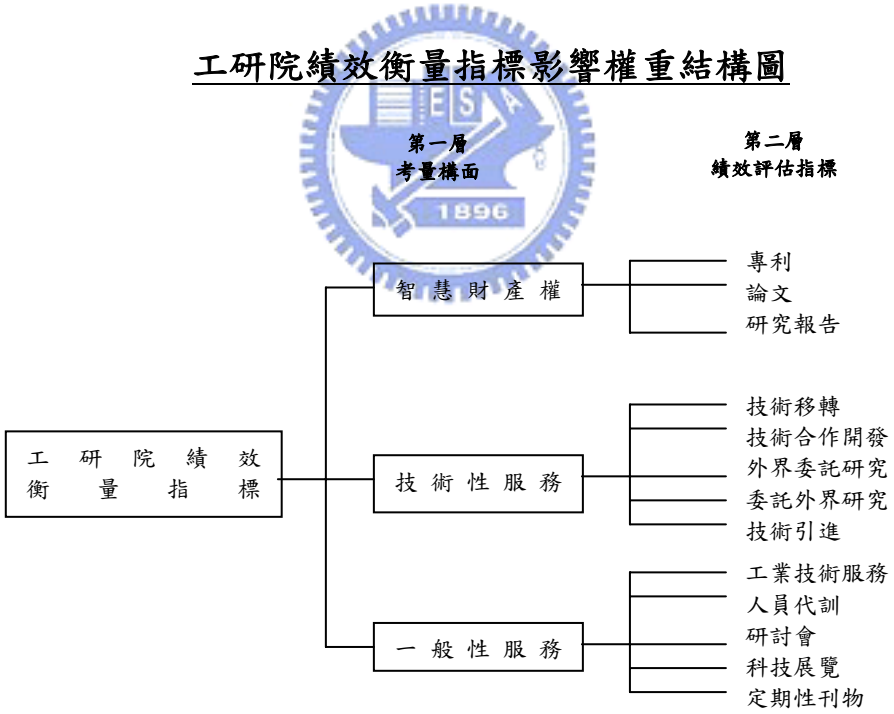
工研院績效衡量指標影響權重結構圖



一、初步研究結果

(一)研究目的及對象

本研究希望找出工研院績效管理 13 項評估指標的權重(重要性)。此 13 項研發績效指標可分為智慧財產權、技術性服務及一般性服務三大類。訪問的對象包括工研院 11 個研發單位、W 單位、X 單位、以及 Y 單位的相關管理、研發及行政人員。總共每單位發出 15 份問卷，共計 210 份，回收 158 份，有效問卷有 133 份。

(二)初步分析結果

1. 初步問卷的結果已經分析完成，幾乎所有單位一致認為「智慧財產權」的績效

較「技術性服務」重要，而後者又比「一般性服務」重要。

2. 例外為 I 與 Y 認為「技術性服務」比「智慧財產權」重要；而 X 則認為「一般性服務」比「技術性服務」重要(請參考表 1)。

(三)差異說明

由於工研院中各單位之工作性質及任務有差異，有些著重在技術研究與創新，有些單位則著重在服務。故不宜將所有單位均以同一套績效評估權重來進行評量及比較。

(四)群組分析比較

本研究將工研院所屬單位依性質區分為三群。第一群為工研院的研發單位，包括 A 單位、B 單位、C 單位、E 單位、F 單位、H 單位、G 單位及 K 單位；第二群為工研院的技術發展及工業服務單位，包括 D 單位、J 單位及 I 單位；第三群為工研院的行政管理及一般服務單位，包括 W 單位、X 單位及 Y 單位。這三群對於以上所提到的三大績效構面的看法具有一致性，請見表 2。

(五)第二層十三項績效評估指標

各單位針對十三項績效評估指標反應的權重(重要性)如表 3，而各群組反應之平均權重如表 4。

二、問題請教及答覆

敬請仔細斟酌：若以貴單位所屬群組之平均績效評估權重作為評量貴單位績效之權重是否合理?是否適合貴單位之業務性質?有無與同一群中其他單位非常不同之處應特殊考量之因素?敬請提供寶貴意見：

_____

_____

_____

_____

三、本研究建議

本研究也認為即使是屬於同一群組中不同單位，仍有其差異之特性。因此建議將目前之群組平均權重乘上 0.95(95%)，也就是保留 5%評量權重給院長調度，以便考量各單位之特性或未來發展策略，而彈性分配於此十三項績效評量指標權重中。若嫌 5%太少不足以突顯貴單位之特性及需要性，亦請提供彈性調整比例之建議。

(請打∨)：_____10%、_____15%、_____20%。

四、初步分析資料表

表 1.以單位為組別分析研發績效評估構面權重(相對重要性)統計表

組別/項目	智慧財產權(排序)	技術性服務(排序)	一般性服務(排序)
W 單位	0.584 (1)	0.293 (2)	0.123 (3)
A 單位	0.567 (1)	0.356 (2)	0.077 (3)
B 單位	0.566 (1)	0.343 (2)	0.091 (3)
C 單位	0.541 (1)	0.317 (2)	0.142 (3)
D 單位	0.402 (1)	0.326 (2)	0.272 (3)
E 單位	0.381 (1)	0.363 (2)	0.256 (3)
F 單位	0.650 (1)	0.257 (2)	0.093 (3)
G 單位	0.394 (1)	0.378 (2)	0.228 (3)
H 單位	0.594 (1)	0.301 (2)	0.105 (3)
I 單位	0.428 (2)	0.436 (1)	0.136 (3)

J 單位	0.458 (1)	0.412 (2)	0.130 (3)
K 單位	0.690 (1)	0.201 (2)	0.109 (3)
X 單位	0.387 (1)	0.286 (3)	0.327 (2)
Y 單位	0.330 (2)	0.483 (1)	0.187 (3)

附記：所有分析計算設定誤差值小於 0.002

表 2.以群組為組別分析研發績效評估構面權重(相對重要性)統計表

組別/項目	智慧財產權(排序)	技術性服務(排序)	一般性服務(排序)
第一群平均	0.568 (1)	0.305 (2)	0.127 (3)
第二群平均	0.425 (1)	0.392 (2)	0.183 (3)
第三群平均	0.467 (1)	0.336 (2)	0.197 (3)
總體平均	0.516 (1)	0.332 (2)	0.152 (3)

附記：所有分析計算設定誤差值小於 0.002

表 3.以單位為組別分析研發績效指標權重(相對重要性)統計表

組別/權重/項目	智慧財產權			技術性服務					一般性服務				
	專利獲得	論文發表	研究報告	技術移轉	技術合作開發	外界委託研究	委託外界研究	技術引進	工業技術服務	人員代訓	舉辦研討會	科技展覽	定期刊物出版
W 單位	0.392	0.123	0.073	0.060	0.079	0.048	0.032	0.075	0.035	0.030	0.026	0.018	0.014
A 單位	0.337	0.089	0.141	0.062	0.110	0.098	0.020	0.066	0.030	0.017	0.014	0.008	0.008
B 單位	0.341	0.116	0.108	0.108	0.098	0.050	0.022	0.067	0.030	0.025	0.015	0.010	0.010
C 單位	0.351	0.145	0.044	0.087	0.092	0.041	0.028	0.069	0.030	0.043	0.028	0.022	0.018
D 單位	0.215	0.085	0.102	0.083	0.092	0.063	0.036	0.052	0.107	0.045	0.049	0.039	0.032
E 單位	0.218	0.099	0.063	0.080	0.082	0.061	0.044	0.096	0.087	0.034	0.055	0.036	0.043
F 單位	0.409	0.125	0.117	0.064	0.057	0.055	0.025	0.055	0.032	0.019	0.018	0.012	0.013
G 單位	0.273	0.043	0.078	0.104	0.096	0.101	0.022	0.056	0.128	0.031	0.029	0.023	0.018
H 單位	0.406	0.075	0.113	0.076	0.081	0.054	0.023	0.067	0.037	0.017	0.022	0.014	0.014
I 單位	0.275	0.065	0.088	0.072	0.150	0.080	0.033	0.101	0.052	0.025	0.022	0.020	0.018
J 單位	0.267	0.112	0.080	0.153	0.081	0.096	0.023	0.059	0.058	0.023	0.015	0.014	0.019
K 單位	0.479	0.120	0.091	0.067	0.038	0.027	0.018	0.052	0.037	0.022	0.018	0.016	0.017
X 單位	0.211	0.067	0.110	0.068	0.067	0.076	0.027	0.048	0.068	0.087	0.085	0.050	0.038
Y 單位	0.211	0.065	0.054	0.135	0.112	0.126	0.050	0.060	0.039	0.034	0.033	0.026	0.054

附記：所有分析計算設定誤差值小於 0.002

表 4.以群組為組別分析研發績效指標權重(相對重要性)順序名次統計表

組別/權重/項目	智慧財產權			技術性服務					一般性服務				
	專利獲得	論文發表	研究報告	技術移轉	技術合作開發	外界委託研究	委託外界研究	技術引進	工業技術服務	人員代訓	舉辦研討會	科技展覽	定期刊物出版
第一群	0.364	0.105	0.099	0.079	0.078	0.056	0.025	0.067	0.044	0.024	0.024	0.017	0.017
第二群	0.252	0.083	0.091	0.095	0.113	0.078	0.032	0.074	0.073	0.032	0.030	0.026	0.023
第三群	0.297	0.093	0.079	0.080	0.083	0.074	0.035	0.064	0.045	0.047	0.045	0.029	0.031
總平均	0.325	0.098	0.094	0.083	0.088	0.064	0.028	0.068	0.052	0.030	0.029	0.021	0.021

附記：所有分析計算設定誤差值小於 0.002

五、回答問卷者基本資料(請選一個格子劃勾「∨」)

□W 單位 □A 單位 □B 單位 □C 單位 □E 單位 □F 單位 □G 單位 □H 單位
□D 單位 □I 單位 □J 單位 □K 單位 □X 單位 □Y 單位 □其它____

附錄三 DEA 應用文獻目錄

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主要發表論文--國際期刊論文

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