

Scaling Occupational Fields and Enterprises

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## DEFINITIONS OF ENTERPRISE GROUPINGS

A. **AGRICULTURE, FORESTRY, AND FISHERIES.** Agricultural operations consist of the production of crops or plants, vines, and trees (excluding forestry operations); or the keeping, grazing, or feeding of livestock for animal products, animal increase, or value increase. Also included are agricultural services, animal husbandry services, and other operations such as hunting, trapping, and game propagation, when carried on as business enterprises. The classification of **FORESTRY** covers timber tracts, forest nurseries, reforestation, and the gathering of gums and barks, as well as other operations connected with forestry. Logging camps are classified in Division D, Manufacturing. The classification of **FISHERIES** covers commercial fishing, fish farms, and related services.

B. **MINING.** Mining includes the extraction of minerals occurring naturally: solids, such as coal and ores; liquids, such as crude petroleum; and gases, such as natural gas. Included are quarrying, well operation, milling (crushing, screening, washing, etc.), and other preparation needed to render the material marketable.

C. **CONTRACT CONSTRUCTION.** General building contractors are primarily engaged in the construction of dwellings, office buildings, stores, farm buildings, and other projects of a similar character. General contractors in fields other than buildings, often referred to as heavy construction contractors, are primarily engaged in the construction of highways, streets, bridges and tunnels, docks and piers, dams and water projects; sewage collection, treatment, and disposal facilities; and storm systems, air fields, and other heavy construction which involves either earth moving or the erection of structures and appurtenances, other than buildings. Special trade contractors are primarily engaged in specialized construction activities such as plumbing, painting, electrical work, and carpentry.

D. **MANUFACTURING.** The manufacturing division includes those establishments engaged in the mechanical or chemical transformation of inorganic or organic substances into new products, and usually described as plants, factories, or mills, which characteristically use power driven machines and materials handling equipment. Establishments engaged in assembling component parts of manufactured products are also considered manufacturing if the new product is neither a structure nor other fixed improvement. The materials processed by manufacturing establishments include products of agriculture, forestry, fishing, mining, and quarrying.

E. **TRANSPORTATION, COMMUNICATION, ELECTRIC, GAS AND SANITARY SERVICES.** This division includes enterprises engaged in passenger and freight transportation by railway, highway, water, or air, or furnished services related to transportation; petroleum pipe line transportation; warehousing; telephone and telegraph communication services; radio broadcasting and television; and the supplying of electricity, gas, steam, water, or sanitary services. Industries assigned to this division are to a large extent regarded legally as having a semipublic character.

F. **WHOLESALE AND RETAIL TRADE.** The chief functions of establishments included in wholesale trade are selling goods to trading establishments, or to industrial, commercial, institutional, and professional users; and bringing buyer and seller together. In addition to selling, functions

Enterprise groupings (continued)

frequently performed by wholesale establishments include maintaining inventories of goods; extending credit; physically assembling, sorting, and grading goods in large lots; breaking bulk and redistribution in smaller lots; delivery; refrigeration; and various types of promotion, such as advertising and label designing. RETAIL TRADE includes establishments engaged in selling merchandise for personal, household, or farm consumption, and rendering services incidental to the sale of the goods.

G. FINANCE, INSURANCE, AND REAL ESTATE. Finance includes banks and trust companies, credit agencies other than banks, holding (but not predominantly operating) companies, other investment companies, brokers and dealers in securities and commodity contracts, and security and commodity exchanges. Insurance covers carriers of all types of insurance, and insurance agents and brokers. Real estate includes owners, lessors, lessees, buyers, sellers, agents, and developers of real estate.

H. SERVICES. This division includes establishments primarily engaged in rendering a wide variety of services to individuals and business establishments. Hotels and other lodging places; establishments providing personal, business, repair, and amusement services; medical, legal, engineering, and other professional services; educational institutions; nonprofit membership organizations; and other miscellaneous services are included.

I. GOVERNMENT. This division includes all Federal, State, local and international government activities, such as the legislative, judicial, and administrative functions, as well as government owned and operated business enterprises.

Adapted from The Standard Industrial Classification Manual, 1957, U.S. Government Printing Office

## Definitions of Fields

- I. SERVICE. These occupations are primarily concerned with serving and attending to the personal tastes, needs, and welfare of other persons. Included are occupations in guidance, social work, domestic and protective services. The armed services are distributed in accordance with the location of the civilian counterparts, i.e., chiefly in Groups III, Organization, and IV, Technology; however, the serviceman whose primary job is analogous to that of the domestic protective services is placed here.
- II. BUSINESS CONTACT. These occupations are primarily concerned with the face-to-face sale of commodities, investments, real estate, and services. Also included are such occupations as demonstrator, auctioneer, and some kinds of agents. A distinction is made in sales occupations between those in which the job is personal persuasion, which belong here, and those in which the selling is routine, and the person-to-person relation relatively unimportant, which belong in the next Group.
- III. ORGANIZATION. These are the managerial and white collar jobs in business, industry, and government, the occupations concerned primarily with the organization and efficient functioning of commercial enterprises and of government activities.
- IV. TECHNOLOGY. This Group includes occupations concerned with the production, maintenance, and transportation of commodities and utilities. Here are occupations in engineering, crafts (including repair work), and the machine trades, as well as transportation and communication.
- V. OUTDOOR - NATURAL SCIENCE. This Group includes agricultural, fishery, forestry, mining, and kindred occupations: the occupations primarily concerned with the cultivation, preservation, and gathering of crops, of marine or inland water resources, of mineral resources, of forest products, and of other natural resources, and with animal husbandry.
- VI. SCIENCE. These are the occupations primarily concerned with scientific theory and its application under specified circumstances, other than technology.
- VII. GENERAL CULTURAL. These occupations are primarily concerned with the preservation and transmission of the general cultural heritage. The Group includes occupations in education, journalism, jurisprudence, the ministry, linguistics, and so on. All elementary and high school teachers are included in this Group. At higher levels teachers of science and art are placed in Groups VI and VIII.
- VIII. ARTS AND ENTERTAINMENT. These occupations include those primarily concerned with the use of special skills in the creative arts and in the field of entertainment. Both creators and performers are included.

## Definitions of Levels

This classification is based upon degrees of responsibility, capacity, and skill, with the level of responsibility being considered primary. By level of responsibility is meant not only the number and difficulty of the decisions to be made, but also how many different kinds of problems must be decided.

- Level 1. PROFESSIONAL AND MANAGERIAL I: INDEPENDENT RESPONSIBILITY. Innovators and creators, top managerial and administrative people, professional persons having important independent responsibility. Criteria are:
- a. Important, independent, and varied responsibilities.
  - b. Policy-making.
  - c. Education: When high-level education is relevant it is at the doctoral level or the equivalent.
- Examples: Doctor, Judge, and Research Scientist.
- Level 2. PROFESSIONAL AND MANAGERIAL II: The distinction between this Level and Level 1 is primarily one of degree. Autonomy may be present but with narrower or less significant responsibilities than in Level 1. Criteria:
- a. Medium-level responsibilities, for self and others, both with regard to importance and variety.
  - b. Policy interpretation.
  - c. Education at or above the bachelor level, but below the doctorate or its equivalent.
- Examples: Social Worker, Broker, and Editor.
- Level 3. SEMI-PROFESSIONAL AND SMALL BUSINESS.
- a. Low-level responsibility for others.
  - b. Application of policy, or determination for self only.
  - c. Education: high school plus technical school or the equivalent.
- Examples: Registered Nurse, Real Estate Salesman, and Interior Decorator.
- Level 4. SKILLED. Occupations requiring apprenticeship or other special training and experience.  
Examples: Policeman, Carpenter, and Medical Technician.
- Level 5. SEMI-SKILLED. Require some training and experience but markedly less than occupations in Level 4. Considerably less autonomy and initiative are permitted in these occupations.  
Examples: Cook, Sales Clerk, and Truck Driver.
- Level 6. UNSKILLED. Require no special training or education and little more ability than is needed to follow simple directions and to engage in simple repetitive actions.  
Examples: Watchman, Messenger Boy, and Carpenter's Helper.

Adapted from Roe, The Psychology of Occupations

(Sample sheet)

FORM FOR RATING CHANGE IN ENTERPRISE

<u>Change From</u>	<u>Change To</u>	1 very slight change	2 some change, clearly noticeable	3 moderate change	4 sizeable change	5 great change
<u>Levels 1 and 2</u>						
A. Agric., forestry & field (Agric. Engineer, Forester, etc.)	B. Mining	_____	_____	_____	_____	_____
"	C. Construction	_____	_____	_____	_____	_____
"	D. Manufacturing	_____	_____	_____	_____	_____
"	E. Transp., Com- munication, Gas, etc.	_____	_____	_____	_____	_____
"	F. Wholesale & Re- tail Trade	_____	_____	_____	_____	_____
"	G. Finance, Ins., & Real Estate	_____	_____	_____	_____	_____
"	H. Services	_____	_____	_____	_____	_____
"	I. Government	_____	_____	_____	_____	_____
B. Mining	A. Agric., forestry & field	_____	_____	_____	_____	_____
C. Constr.	"	_____	_____	_____	_____	_____
D. Manuf.	"	_____	_____	_____	_____	_____
E. Transp.	"	_____	_____	_____	_____	_____
F. Wholesale...	"	_____	_____	_____	_____	_____
G. Finance...	"	_____	_____	_____	_____	_____
H. Services...	"	_____	_____	_____	_____	_____
I. Government	"	_____	_____	_____	_____	_____

(Sample sheet)

FORM FOR RATING CHANGES IN FIELD

<u>Change From</u>	<u>Change To</u>	1	2	3	4	5
		very slight change	some change, clearly noticeable	moderate change	sizeable change	great change
<u>Levels 1 and 2</u>						
I Service	II Business Contact	_____	_____	_____	_____	_____
"	III Business Organization	_____	_____	_____	_____	_____
"	IV Technology	_____	_____	_____	_____	_____
"	V Outdoor-Natural Science	_____	_____	_____	_____	_____
"	VI Science	_____	_____	_____	_____	_____
"	VII General Cultural	_____	_____	_____	_____	_____
"	VIII Arts and Entertainment	_____	_____	_____	_____	_____
II Business Contact	I Service	_____	_____	_____	_____	_____
III Business Organization	"	_____	_____	_____	_____	_____
IV Technology	"	_____	_____	_____	_____	_____
V Outdoor-Natural Science	"	_____	_____	_____	_____	_____
VI Science	"	_____	_____	_____	_____	_____
VII General Cultural	"	_____	_____	_____	_____	_____
VIII Arts and Entertainment	"	_____	_____	_____	_____	_____

## (Sample sheet)

RESULTS OF RATING CHANGES IN ENTERPRISE  
on a scale ranging from 1 to 5

<u>Change from:</u>	<u>Change to:</u>	<u>Mean rating</u>	<u>Standard deviation of rating</u>	Confidence Interval containing true mean at .05 level. Obtained mean <u>plus or minus:</u>
<u>Levels 1 and 2</u>				
A. Agric. forestry & field (Agric. engineer, forester, etc.)	B. Mining	2.9	1.24	1.03
"	C. Construction	2.9	1.36	1.13
"	D. Manufacturing	3.5	1.31	1.09
"	E. Transp., Communication, Gas	3.4	1.30	1.08
"	F. Wholesale & Retail Trade	3.5	1.20	1.00
"	G. Finance, Ins., & Real Estate	4.1	1.32	1.10
"	H. Services	3.5	1.41	1.18
"	I. Government	3.0	1.51	1.26
B. Mining	A. Agric., forestry & field	2.9	1.24	1.03
C. Construction	"	2.9	1.36	1.13
D. Manufacturing	"	3.8	.89	.74
E. Transportation	"	3.6	1.19	.99
F. Wholesale...	"	3.8	1.02	.85
G. Finance...	"	4.0	.93	.78
H. Services...	"	3.6	1.41	1.18
I. Government	"	3.1	1.46	1.22
<u>Levels 3 and 4</u>				
A. Agric. forestry & field (county agent, Forest Ranger, etc.)	B. Mining	2.6	1.06	.88
"	C. Construction	3.2	.71	.59
"	D. Manufacturing	3.6	.74	.62
"	E. Transp., Communication, Gas	3.5	.76	.63
"	F. Wholesale & Retail Trade	3.6	.92	.77
"	G. Finance, Ins., & Real Estate	4.0	1.07	.89
"	H. Services	3.4	1.06	.88
"	I. Government	2.4	1.19	.99
B. Mining	A. Agric., forestry & field	2.8	1.03	.86
C. Construction	"	3.0	1.07	.89
D. Manufacturing	"	3.8	.73	.61

## (Sample sheet)

RESULTS OF RATING CHANGES IN FIELD  
on a scale ranging from 1 to 5

<u>Change from:</u>	<u>Change to:</u>	<u>Mean rating</u>	<u>Standard deviation of rating</u>	Confidence Interval containing true mean at .05 level. Obtained mean plus or minus:
<u>Levels 1 and 2</u>				
I Service	II Bus. Contact	3.0	1.07	.89
I Service	III Bus. Org'n.	3.2	1.03	.86
I Service	IV Technology	4.2	1.03	.86
I Service	V Outdoor-Natural Science	4.1	.98	.82
I Service	VI Science	3.8	1.49	1.24
I Service	VII General Cultural	1.8	1.13	.94
I Service	VIII Arts and Entertainment	4.5	.54	.45
II Bus. Contact	I Service	3.2	1.03	.86
III Bus. Org'n.	I Service	3.9	.99	.82
IV Technology	I Service	4.1	.84	.70
V Outdoor-Natural Science	I Service	4.1	.99	.86
VI Science	I Service	4.1	.64	.53
VII Gen. Cultural	I Service	2.1	1.36	1.13
VIII Arts and Entertainment	I Service	4.5	.76	.63
<u>Levels 3 and 4</u>				
I Service	II Bus. Contact	3.0	1.40	1.17
I Service	III Bus. Org'n.	3.0	.93	.78
I Service	IV Technology	3.7	1.06	.88
I Service	V Outdoor-Natural Science	4.0	.93	.78
I Service	VI Science	3.1	1.13	.94
I Service	VII General Cultural	3.4	1.19	.99
I Service	VIII Arts and Entertainment	3.6	1.06	.88
II Bus. Contact	I Service	3.8	.71	.59
III Bus. Org'n	I Service	3.2	.71	.59
IV Technology	I Service	3.9	.36	.30
V Outdoor-Natural Science	I Service	3.6	1.30	1.08
VI Science	I Service	2.8	1.03	.86
VII Gen. Cultural	I Service	2.9	1.24	1.03
VIII Arts and Entertainment	I Service	3.8	1.17	.98
<u>Levels 5 and 6</u>				
I Service	II Bus. Contact	2.1	.99	.82
I Service	III Bus. Org'n.	2.5	1.07	.89
I Service	IV Technology	2.5	1.31	1.09
I Service	V Outdoor-Natural Science	2.6	1.60	1.33

All Changes of Enterprise made by 123 Career Pattern Study Subjects  
 from the date of leaving school until the follow-up interview in 1962

Nature of Move	Number of Subjects
Manufacturing to Trade	9
Agriculture to Manufacturing	6
Manufacturing to Construction	6
Trade to Agriculture	5
Trade to Transportation	4
Trade to Government	4
Agriculture to Trade	4
Manufacturing to Finance	3
Service to Manufacturing	3
Transportation to Trade	3
Construction to Manufacturing	3
Construction to Trade	3
Trade to Service	3
Finance, etc. to Government	3
Construction to Finance, etc.	2
Construction to Government	2
Manufacturing to Agriculture	2
Manufacturing to Government	2
Transportation to Construction	2
Transportation to Service	2
Government to Service	2
Trade to Manufacturing	2
Government to Manufacturing	2
Agriculture to Construction	1
Transportation to Manufacturing	1
Government to Agriculture	1
Government to Transportation	1
Manufacturing to Service	1
Trade to Construction	1
Finance, etc. to Trade	1
Service to Trade	1
Agriculture to Government	1
Manufacturing to Transportation	1
Construction to Transportation	1
Finance to Manufacturing	1
Service to Construction	1
Service to Government	1

All Field Moves made by 123 Career Pattern Study Subjects  
 from the date of leaving school until the follow-up interview in 1962

Nature of Field Move	Number making move
Technology to Business Organization	10
Business Organization to Technology	9
Outdoor to Technology	8
Business Contact to Technology	8
Technology to Business Contact	6
Technology to Service	6
Service to Technology	5
Outdoor to Business Organization	3
Technology to Outdoor	3
Business Contact to Business Organization	2
Service to Business Organization	2
Technology to General Cultural	1
Business Contact to General Cultural	1
Business Organization to Service	1
Outdoor to Service	1
Business Organization to Outdoor	1
Service to Business Contact	1
Business Contact to Service	1
Business Organization to Business Contact	1
Outdoor to Business Contact	1
Business Contact to Outdoor	1

All Level Moves made by 123 Career Pattern Study Subjects  
from the date of leaving school until the follow-up interview in 1962

Nature of Level Move	Number of subjects making move
Level 5 to Level 4	22
Level 6 to Level 5	15
Level 4 to Level 3	9
Level 5 to Level 3	8
Level 5 to Level 6	5
Level 4 to Level 5	5
Level 3 to Level 5	3
Level 3 to Level 4	2
Level 4-on-job to Level 4	2
Level 5 to Level 5-Apprentice	1
Level 3 to Level 3-Apprentice	1
Level 3 to Level 4-on-job	1