

## Example of application of the SOM:

### World Poverty Map

The [Self-Organizing Map \(SOM\)](#) can be used to portray complex correlations in statistical data. Here the data consisted of World Bank statistics of countries in 1992. Altogether 39 indicators describing various quality-of-life factors, such as state of health, nutrition, educational services, etc, were used. The complex joint effect of these factors can be visualized by organizing the countries using the self-organizing map.

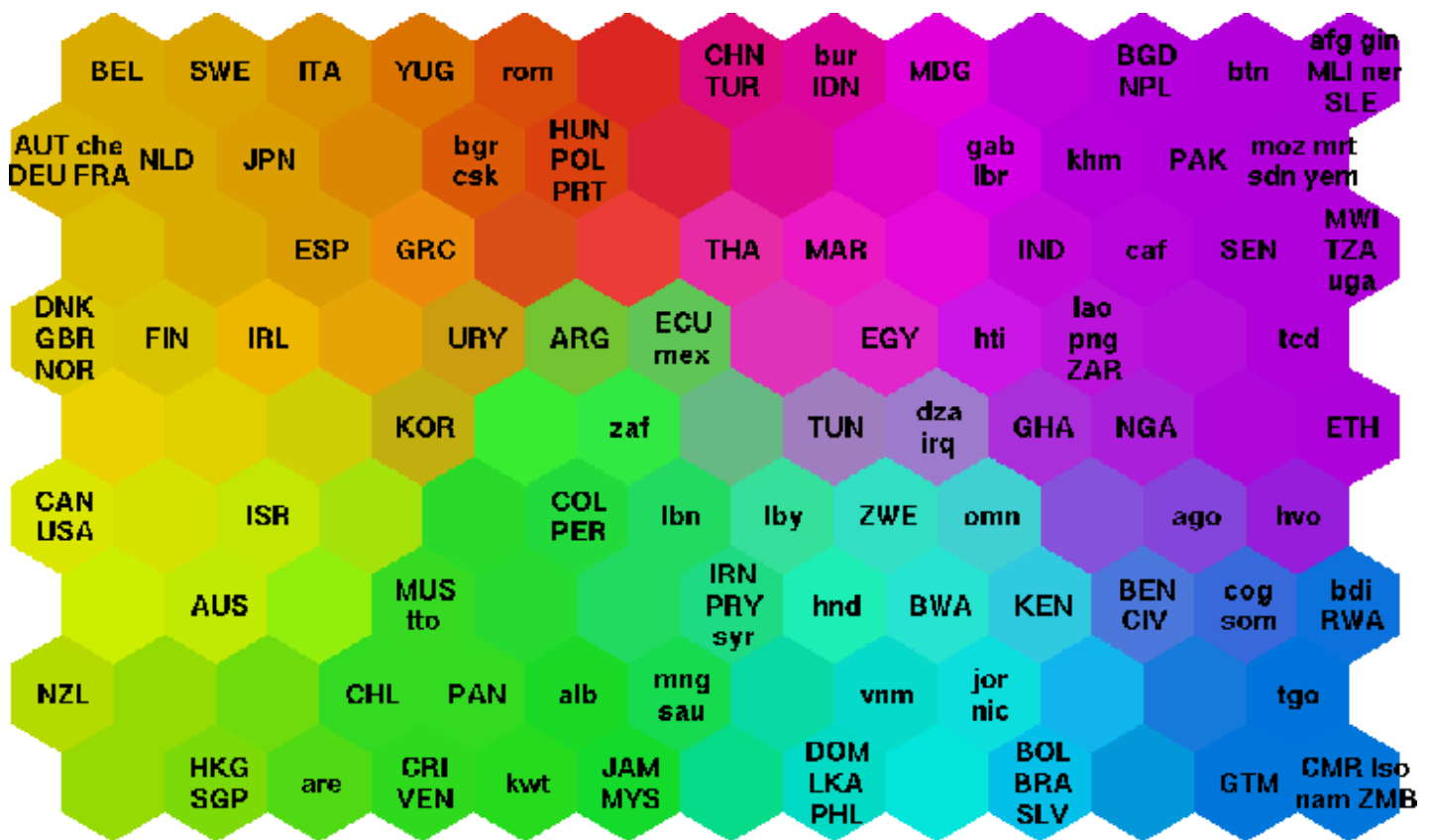
Countries that had similar values of the indicators found a place near each other on the map. The different clusters on the map were automatically encoded with different bright colors, nevertheless so that colors change smoothly on the map display. As a result of this process, each country was in fact automatically assigned a color describing its poverty type in relation to other countries.

The poverty structures of the world can then be visualized in a straightforward manner: each country on the geographic map has been colored according to its poverty type.

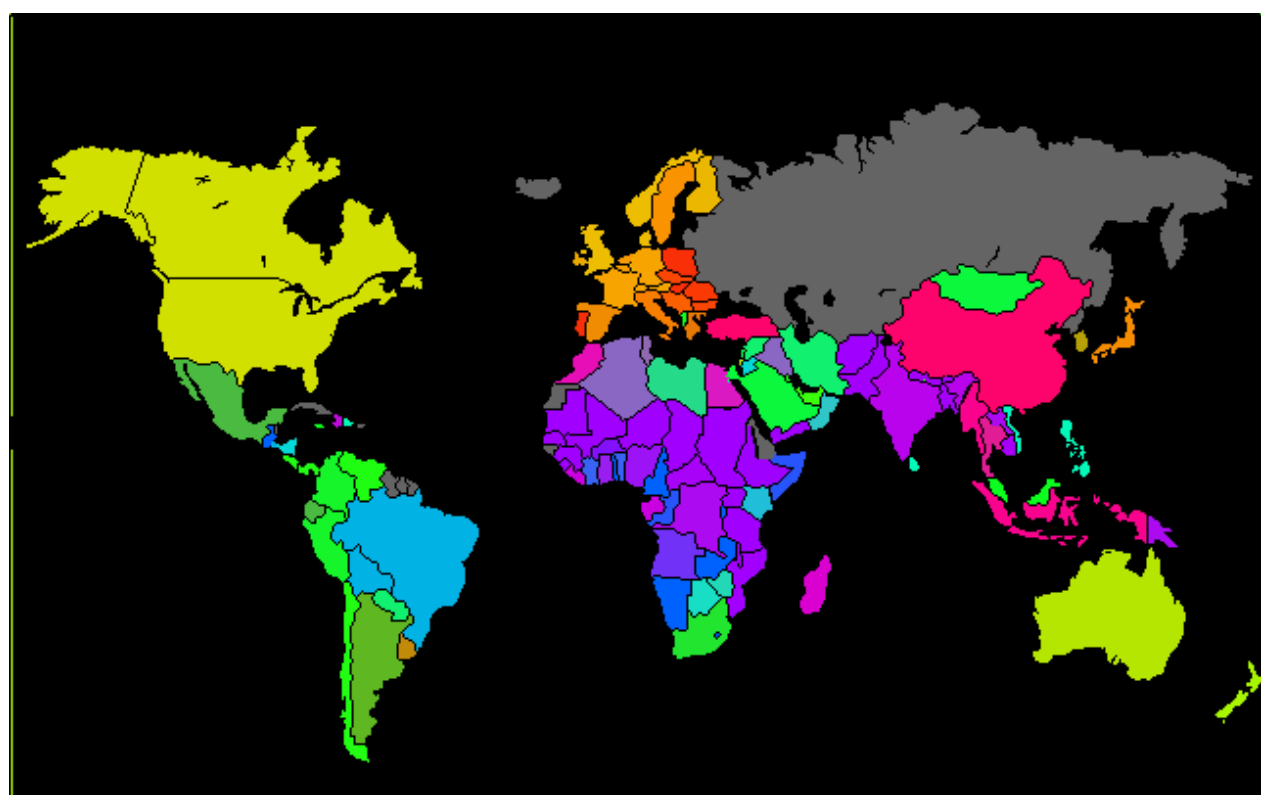
### The Country Names

AFG	Afghanistan	GTM	Guatemala	NZL	New Zealand
AGO	Angola	HKG	Hong Kong	OAN	Taiwan, China
ALB	Albania	IND	Indonesia	OMN	Oman
ARE	United Arab Emirates	ITA	Italy	PAK	Pakistan
ARG	Argentina	MLT	Malta	PAN	Panama
AUS	Australia	MYO	Myanmar	PER	Peru
AUT	Austria	IND	Indonesia	PIL	Philippines
BDI	Burundi	IND	India	PNG	Papua New Guinea
BEL	Belgium	IRL	Ireland	POL	Poland
BEN	Benin	IRN	Iran, Islamic Rep.	PRT	Portugal
BGD	Bangladesh	IRQ	Iraq	PRY	Paraguay
BGR	Bulgaria	ISR	Israel	ROU	Romania
BOL	Bolivia	ITA	Italy	RWA	Rwanda
BRA	Brazil	JAM	Jamaica	SAL	Saudi Arabia
BUR	Burma	JOR	Jordan	SDN	Sudan
BUR	Burma	JPN	Japan	SEN	Senegal
BWA	Botswana	KEN	Kenya	SGP	Singapore
CAP	Central African Rep.	KHM	Kambodia	SLE	Sierra Leone
CAN	Canada	KOR	Korea, Rep.	SLV	El Salvador
CHE	Switzerland	KWT	Kuwait	SOM	Somalia
CHL	Chile	LAO	Laos PDR	SWE	Sweden
CHN	China	LBN	Lebanon	SYR	Syrian Arab Rep.
CIV	Cote d'Ivoire	LBR	Liberia	TCD	Chad
CMR	Cameroon	LBY	Libya	TGO	Togo
COG	Congo	LKA	Sri Lanka	THA	Thailand
COL	Colombia	LSO	Lesotho	TTO	Trinidad and Tobago
CRI	Costa Rica	MAR	Morocco	TUN	Tunisia
CSE	Czechoslovakia	MDG	Madagascar	TUR	Turkey
DEU	Germany	MEX	Mexico	TZA	Tanzania
DNK	Denmark	MLI	Mali	UGA	Uganda
DOM	Dominican Rep.	MNG	Mongolia	URY	Uruguay
DZA	Algeria	MOZ	Mozambique	USA	United States
ECU	Ecuador	MRT	Mauritania	VEN	Venezuela
EGY	Egypt, Arab Rep.	MUS	Mauritius	VNM	Viet Nam
ESP	Spain	MWI	Malawi	YEM	Yemen, Rep.
ETH	Ethiopia	MYS	Malaysia	YUG	Yugoslavia
FIN	Finland	NAM	Namibia	ZAF	South Africa
FRA	France	NER	Niger	ZAR	Zaire
GAB	Gabon	NGA	Nigeria	ZMB	Zambia
GBR	United Kingdom	NTC	Nicaragua	ZWE	Zimbabwe
GHA	Ghana	NLD	Netherlands		
GIN	Guinea	NOR	Norway		
GRD	Greece	NPL	Nepal		

Countries organized on a self-organizing map based on indicators related to poverty:



A map of the world where countries have been colored with the color describing their poverty type (the color was obtained with the SOM in the previous figure):



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*URL: <http://www.cis.hut.fi/research/som-research/worldmap.html>*