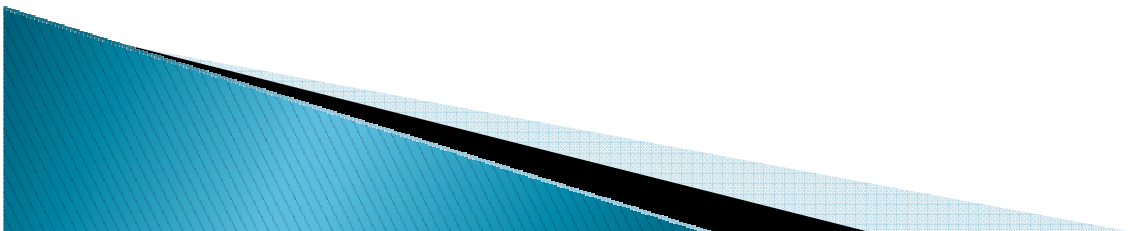


Objectives Matrix

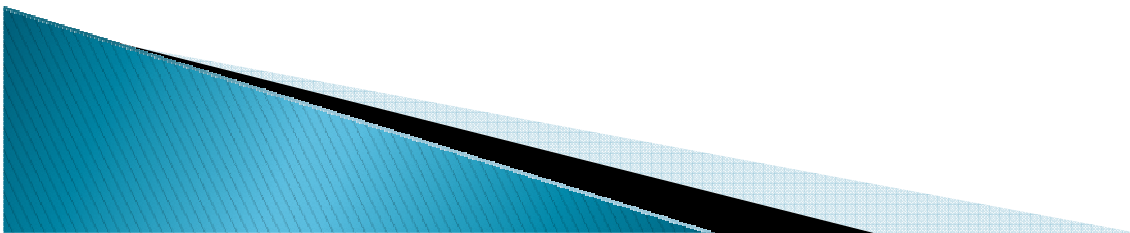
Developed by J. Riggs

Exercises – Sanja Marinkovic



Objectives Matrix

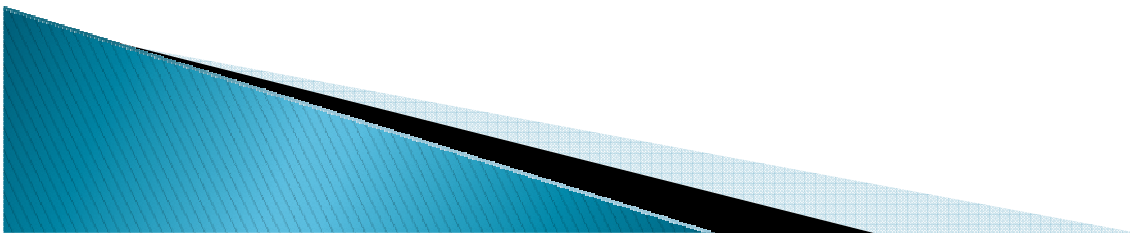
- ▶ Method for rating productivity in organization
- ▶ Main advantage of this matrix is that both aspects related to productivity – **efficiency and effectiveness**, can be taken into quantitative consideration by decomposing of overall productivity factors.



Objectives Matrix method

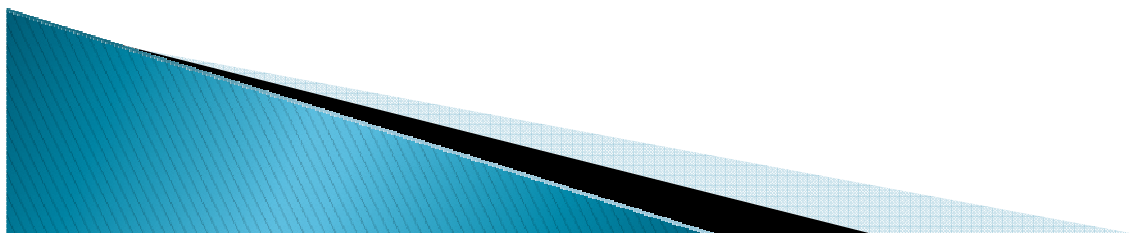
- ▶ Simple and general
- ▶ Usable in various kind of business

- ▶ It can be used for viewing productivity in an organization after introducing new technology.



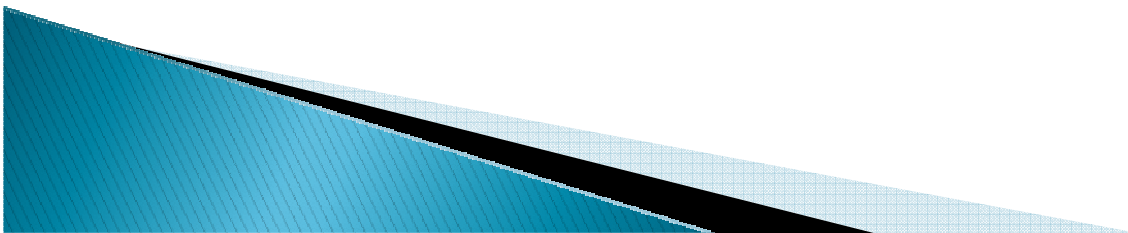
Objectives Matrix

- ▶ Objectives Matrix Method was developed to measure productivity in **manufacturing field**.
- ▶ Careful selection of productivity factors inside the matrix allows us to apply it successfully to services as well, using all of its advantages for tracking efficiency and effectiveness of providing **services**.

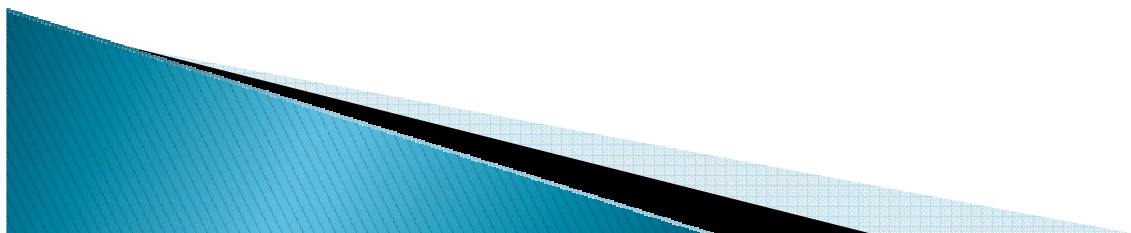


- ▶ WE CAN MEASURE PRODUCTIVITY AT DIFFERENT LEVELS

- ▶ COMPANY
- ▶ DEPARTMENT
- ▶ INDIVIDUAL

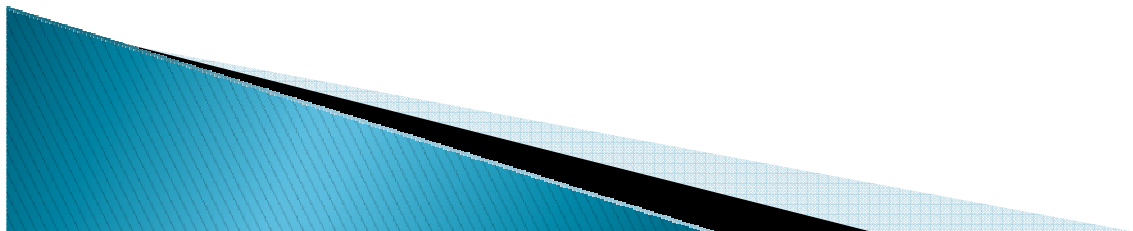


- ▶ **At the level of the company**, productivity is fundamental to **profitability and survival**, which means companies with higher productivity than the industry average tend to have higher profit margins.
- ▶ **At the personal level**, increasing productivity in one's activities is an important aspect of **self-fulfillment**.



The Objectives Matrix

- This method is comprehensive and very flexible.
- It can be used to derive a composite index for the entire organization or to individual productivity measures.



	I1	I2	I3	I4	I5	Indicators
D	5.0	4.1	75	86	21.3	<i>Performance</i>
	3.0	2.5	90	95	10.0	10
	3.5	2.8	89	94	11.2	9
	4.0	3.1	87	92	12.4	8
	4.7	3.4	85	90	13.8	7
B	5.4	3.8	83	88	15.4	6
	6.3	4.2	81	86	17.2	5
	7.3	4.7	79	84	19.2	4
	8.5	5.3	77	82	21.3	3
	10.0	5.9	75	80	23.5	2
	11.7	6.6	73	78	27.0	1
	13.5	7.5	70	75	30	0
E	6.6	5.2	2.0	5.0	3.0	<i>Actual Score</i>
F	25	25	30	10	10	<i>Weights</i>
G	165	130	60	50	30	<i>Value</i>
	Total weighted score					435

Description Of Objective Matrix Components

NAME		DESCRIPTION
A	Indicator	Indicator is the aspects of measurement. All the aspects taking into account to derive composite index. Each indicator contains the ratio of output into input, (Output/Input) which is basically productivity score for that particular aspect.
B	Score-range	Score-range is some kind of table look up to refer the position of each indicator based on their actual score. The score range are proposed by management staff. In this case the maximum achievement will assign to largest number of score(10) and the worst will tend to have smallest number (0).The formula of construction this palette is: [(Maximum achievement-Minimum achievement)/10]
C	Score	Score is the value of range according to actual score.
D	Actual Index	Actual Index is the exact figure achieved by each indicator based on the calculation of the data.
E	Actual Score	Example: Documentation Index has actual score of 86; based from the palette, the score is 5.
F	Index's Weight	Index's Weight shows the weight of each indicator. This is assigned by management staff based on which ratio they want to emphasize more. Larger number means the aspect is more stressed.
G	Value	Value = (Actual score * Index's weight) = (E * F)
H	Total Weighted Score	Total weighted score = Total value (Value) = Total G

EXAMPLE: Factors chosen for tracking productivity, as indicators of the success of new technology in a given period of time

M.D.D. – meeting delivery deadlines in the given period (%)

F.P. – flexibility of a process, as a number of various technology processes

F.P.S. – flexibility of product/service, as a number of various products/services

G.P. – overall productivity

P.S.P. – manufacturing price of an item, in financial terms

T.L.C. – technology life cycle, as a number of years till full maturity of technology

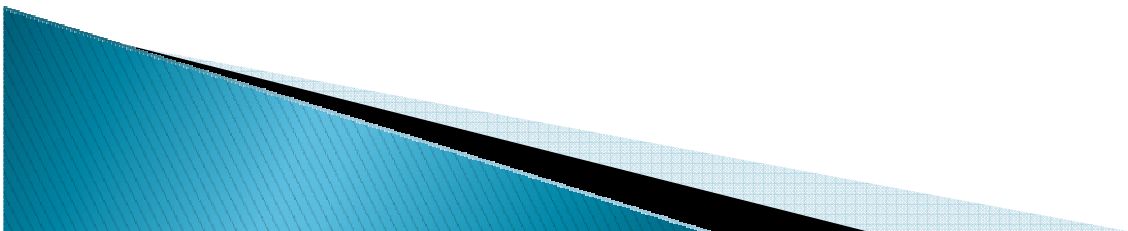


Table 1: Objectives Matrix for rating effectiveness

		EFFECTIVENESS FACTORS						
		M.D.D. (%)	F.P. n. var. proc.	F.P.S. n.var. prod/serv.	Gp (%)	P.S.P. (€)	T.L.C. years to matur.	
ESTIMATES	A.V	85%	4	7	120	270	4	
	10	100	11	12	180	250	10	
	9	98	10	11	170	260	9	
	8	96	9	10	160	270	8	
	7	94	8	9	150	280	7	
	6	92	7	8	140	290	6	
	5	90	6	7	130	300	5	
	4	88	5	6	120	310	4	
	3	86	4	5	110	320	3	
	2	84	3	4	90	330	2	
	1	82	2	3	80	340	1	
0	80	1	2	70	350	0		
ESTIMATE		2.5	3	5	4	8	4	
REL. NUMB.		20	30	15	12,5	10	12,5	
VALUE		50	90	75	50	80	50	
		TOTAL VALUE					395	

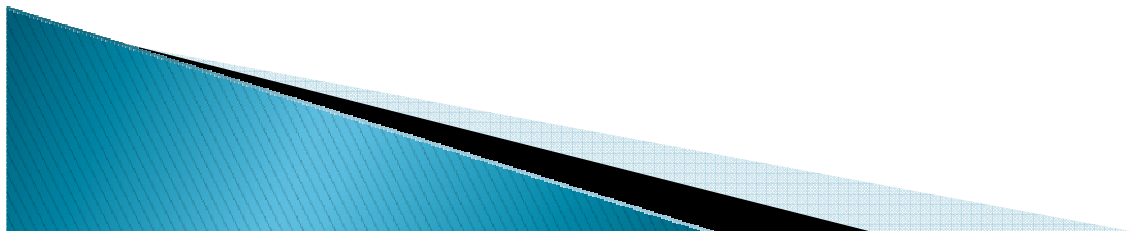
Productivity Calculation

- Basically, when calculating the productivity, it actually happens to be benchmarking between the current performances compared to previous.

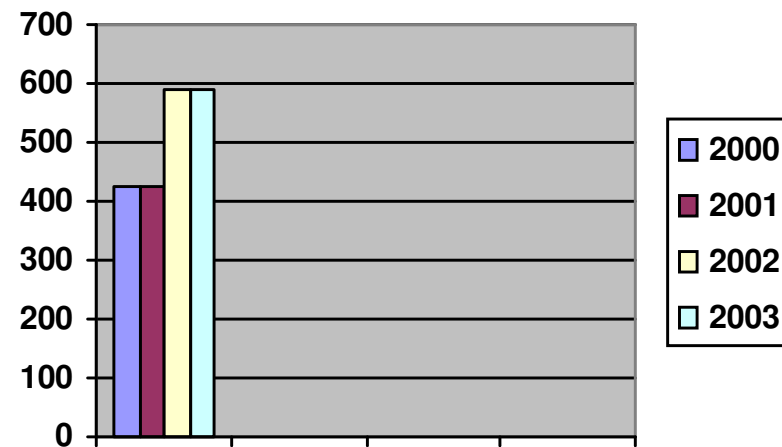
- *Formula:*

$$\text{Productivity Index} = \left(\frac{V_1 - V_2}{V_2} \right) * 100\%$$

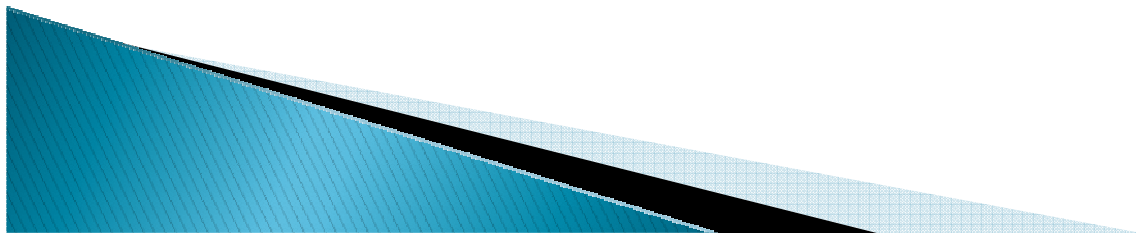
- $V_1 = \textit{weighted score for current period}$
- $V_2 = \textit{weighted score for previous period}$



		Te (din/e m)	F _{i/o}	GP (%)	E (kwh/e m)	RD	L	Q	Index of productivity
2000	Values	20767 5	1.48	391	778	778	4.01 5	24	424
	Estimates	1	6	6	1	6	3	5	
2001	Values	25807 8	1.48	258	1.099	193	10.1 30	27	427
	Estimates	2	7	3	2	1	9	6	
2002	Values	325.58 6	1.27	330	2.877	998	9.95 4	27	592
	Estimates	4	3	4.5	6	7	9	6	
2003	Values	387.53 5	1.32	306	4.440	1.325	4.96 3	27	589
	Estimates	7.5	3.5	4	9	9	4	6	

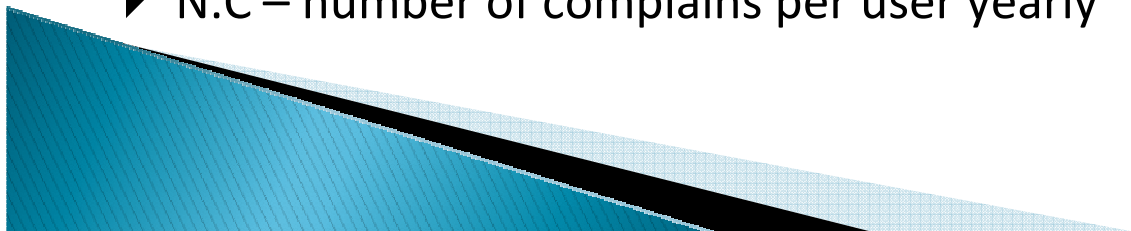


Objectives Matrix in telecommunications – example of a cable TV operator



Cable TV operator

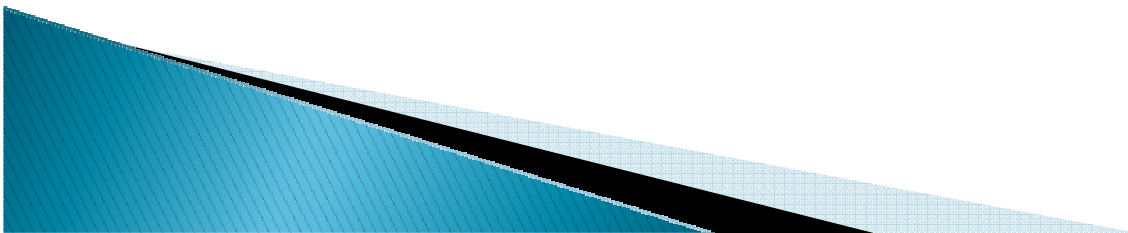
- ▶ N.U – number of the cable TV users
- ▶ N.I.U – cable Internet users (%)
- ▶ C.S –charged services
- ▶ B.C – broken contracts (%)
- ▶ D.U – disconnected users (%)
- ▶ V.M.U – value of material per new user (€)
- ▶ T.R.S – time for repairing a signal after a group complain (hours)
- ▶ N.C – number of complains per user yearly



		NU	NIU	CS	BC	DU	VMU	TRS	NC	
		*10 ³	%	%	%	%		h		
PERF		117	4.16	94.00	1.57	8.23	28.13	18	1.18	
	10	150	7.50	100.00	0.00	1	18	0	0.25	
	9	140	7.00	99.50	0.50	2	20	2	0.50	
	8	135	6.50	99.00	1.00	3	22	4	0.75	
	7	130	6.00	98.50	1.50	4	24	6	1.00	
	6	125	5.50	98.00	2.00	5	26	8	1.25	
	5	120	5.00	97.50	2.50	6	28	10	1.50	
	4	115	4.50	97.00	3.00	7	30	12	1.75	
	3	110	4.00	96.00	3.50	8	32	14	2.00	
	2	105	3.50	95.00	4.00	9	34	16	2.25	
	1	100	3.00	94.00	4.50	10	36	18	2.50	
	0	95	2.50	93.00	5.00	11	38	20	2.75	
Score		4.5	3	1	7	3	6	1	6	
Weights		18	16	14	8	8	14	12	10	
Value		81	48	14	56	24	84	12	60	
Total weighted score 379										

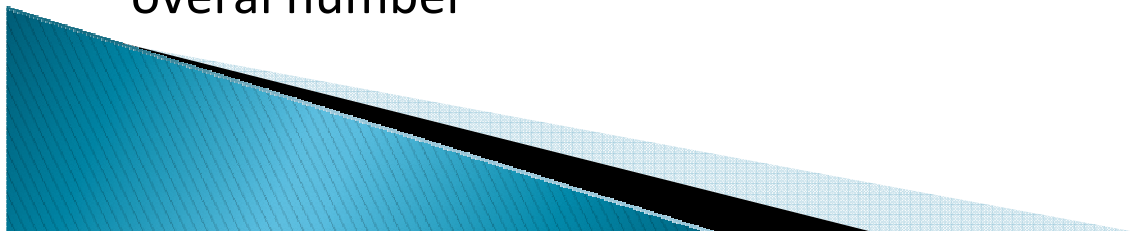
- ▶ How to create a Matrix and calculate productivity?

- ▶ By using suitable factors, we can determine:
 - The level of technology effectiveness
 - The level of technology efficiency
 - Overall productivity



Factors chosen according to survey conducted in International Head office of Telecom Serbia after new technology introduction

- ▶ R.P.D – Percentage of received and processed clients' requirements for a new connection
- ▶ R.D – Percentage of rejected requirements from network system to clients
- ▶ D.I.U – Delay in implementation of new technology, given in number days from the day of purchase
- ▶ U.C – Use of telephone exchange capacity
- ▶ T.E – Technical equipment - EUR per employee
- ▶ Q.E – Qualification structure, as the number of higher educated staff in overall number



		RPD	RD	DIU	UC	TE	QE	
		%	%	(dani)	%	DEM/zap.	%	
Score	Perf	85	19	25	82	95500	100	
	10	95	5	14	95	100000	95	
	9	90	10	17	90	95000	90	
	8	85	15	21	85	90000	85	
	7	80	20	24	80	85000	80	
	6	75	25	28	75	80000	75	
	5	70	30	31	70	75000	70	
	4	65	35	35	65	70000	65	
	3	60	40	38	60	65000	60	
	2	55	45	42	55	60000	55	
	1	50	50	45	50	55000	50	
0	45	55	49	45	50000	45		
Actual score		8	7	7	7	9	10	
Weights		17	16	16	22	14	15	
Value		136	112	112	154	126	150	
Total weighted score		790						

Example:

Increasing the Productivity of Office Staff

Indexing Key Performance Measures using an Objectives Matrix

