



UNICAMP

TARGET AND KAIZEN COSTING IMPLEMENTATION IN CONSTRUCTION

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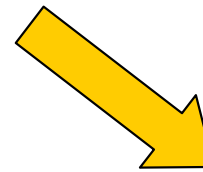
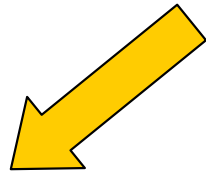


AIMS AND METHODOLOGY

- Implementing a combined target and kaizen costing approach along the planning and construction phases of brand retail units (BRU);
- A initiative towards the application of target and kaizen costing concepts on civil construction;
- To determine future research priorities, as well.

VALUE ENGINEERING AND VALUE ANALYSIS

$$\text{VALUE} = \frac{\text{FUNCTION}}{\text{COST}}$$



VALUE ENGINEERING:

APPLIED DURING THE
PROJECT DEFINITION PHASE

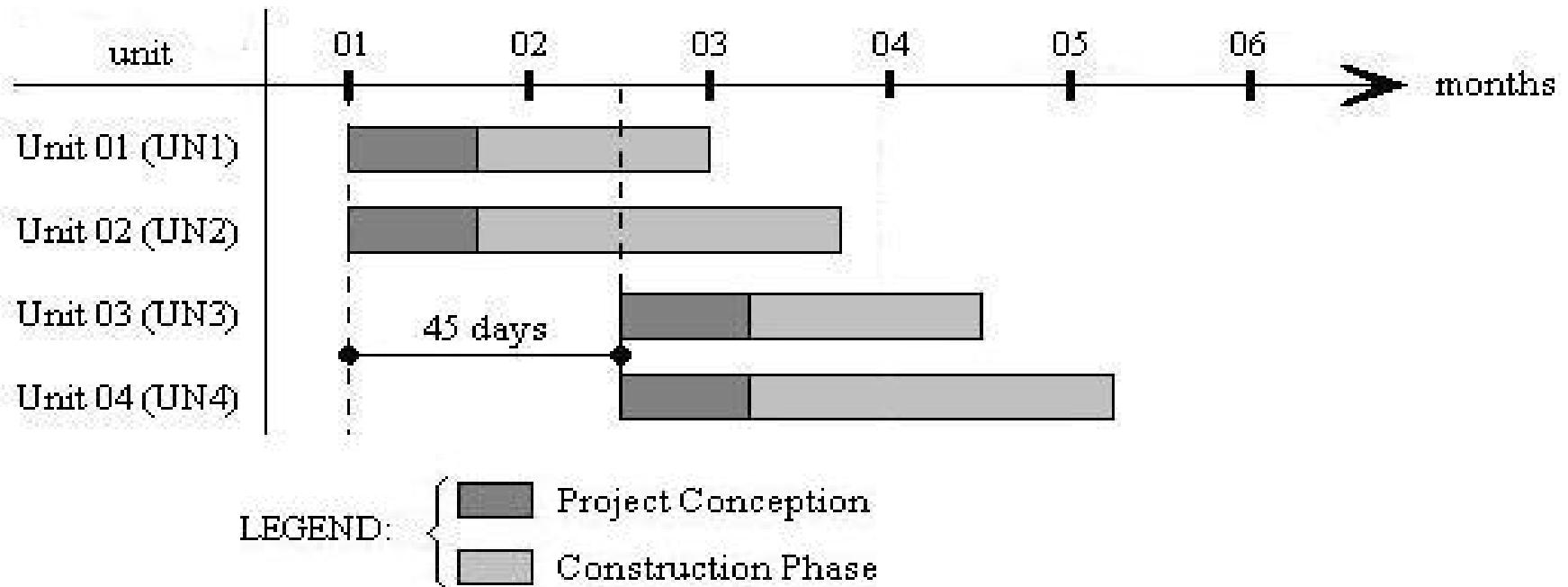
VALUE ANALYSIS:

APPLIED DURING THE
PRODUCTION PHASE

CASE STUDY

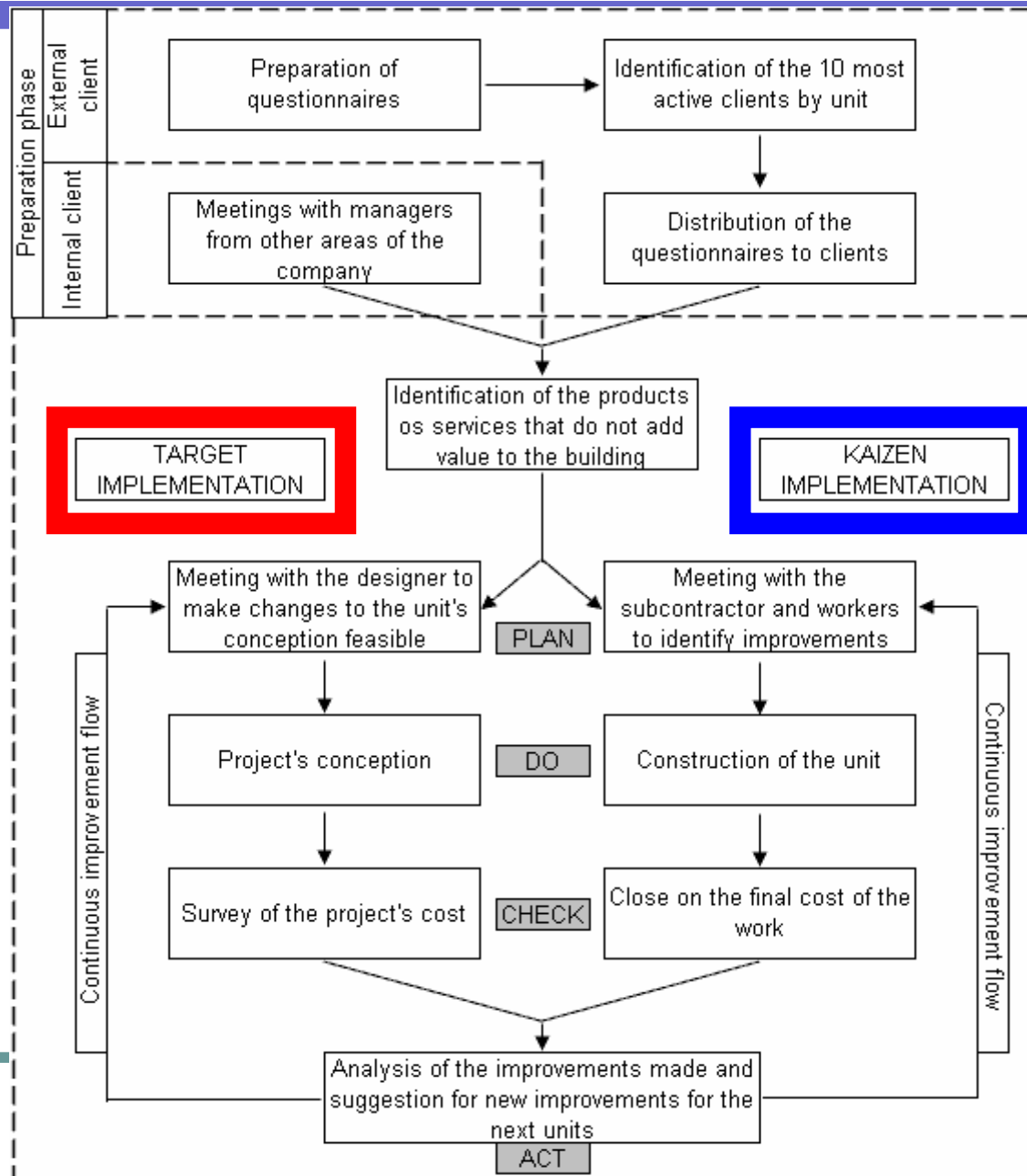
- Developed on an international retail chain, a master franchise of 120 units in operation in Brazil
- Units are characterized by having similar projects and fast construction times
- Four units were the subject of the case study

SCHEDULE



- Schedule for the implementation of the units, highlighting the project and construction phases

IMPLEMENTATION FRAMEWORK



RESULTS

- 10 questionnaires were obtained from each unit, 1.200 on total;
- Two meetings were held with the managers from other areas;
- Employees made 31 suggestions for improvements during the construction phase, 8 were implemented;
- Cost reductions around 13% compared with previous cost data;

What is Value for the Client?

ANALYZED ITEM / IMPORTANCE DEGREE	VERY HIGH	HIGH	LOW	VERY LOW	NOT ASSIGN
Type of side walls for the building	1,6%	3,3%	42,0%	44,6%	8,5%
Type of roof on the building	3,8%	6,1%	40,6%	44,8%	4,8%
Specification of the paint color for the sales room	9,3%	9,8%	40,6%	34,6%	5,7%
Brand of finishing in the bathrooms	8,3%	6,9%	39,7%	40,1%	5,1%
Type and brand of the internal lining	14,5%	17,7%	31,8%	30,8%	5,3%
Type and brand of internal flooring	9,8%	9,3%	33,2%	43,0%	4,8%
Type of lights and specification of the electrical system	14,4%	20,7%	34,3%	24,4%	6,3%
Bathroom sink and metal toilet brand	9,1%	10,7%	36,3%	38,1%	5,8%
Method for cooling the environment	34,0%	35,9%	17,1%	9,7%	3,3%
Existence of cooling in the bathrooms	22,3%	30,8%	22,2%	20,9%	3,8%
Brand of metallic pieces for the doors to the street	10,0%	11,3%	37,3%	36,3%	5,1%
Type of internal frames	11,8%	11,8%	37,0%	34,5%	4,9%
Existence of landscaping in external areas	1,9%	6,5%	35,8%	53,7%	2,2%
Type of paving in the parking lot	4,8%	10,5%	33,8%	46,1%	4,8%
Color of the Sales furniture	17,9%	33,3%	24,8%	16,0%	8,1%

costs of UN1/UN3 (35 days)

ITEM	HISTORICAL COST	UN1 ONLY TARGET	UN3 ONLY TARGET	UN3 TARGET + KAIZEN
Initial preparation	\$ 467,60	\$ 0,00	\$ 1.250,00	\$ 1.250,00
Structure auxiliary	\$ 732,70	\$ 510,56	\$ 657,88	\$ 657,89
Masonry	\$ 2.462,54	\$ 931,56	\$ 1.005,67	\$ 925,62
Covering	\$ 5.481,91	\$ 3.727,67	\$ 4.072,76	\$ 3.472,76
Internal lining	\$ 1.579,29	\$ 1.241,51	\$ 1.454,06	\$ 1.222,56
Internal flooring	\$ 4.885,71	\$ 4.115,00	\$ 4.846,87	\$ 4.846,87
Hydraulics / Electrical	\$ 29.660,24	\$ 24.046,04	\$ 28.644,39	\$ 27.209,13
Cooling system	\$ 14.240,16	\$ 15.373,21	\$ 17.806,77	\$ 16.608,83
Glasses and frames	\$ 11.060,46	\$ 9.284,17	\$ 10.157,76	\$ 8.477,85
External area	\$ 345,51	\$ 0,00	\$ 400,00	\$ 400,00
Toilet accessories	\$ 918,55	\$ 491,00	\$ 508,00	\$ 508,00
Final services (cleanness, support)	\$ 1.765,60	\$ 1.962,49	\$ 2.747,86	\$ 2.747,86
Cabling	\$ 8.500,00	\$ 8.500,00	\$ 9.192,26	\$ 7.125,00
Visual communication	\$ 22.880,63	\$ 19.875,00	\$ 24.275,00	\$ 24.275,00
Furniture	\$ 28.632,21	\$ 27.500,00	\$ 30.696,88	\$ 30.696,88
Security system	\$ 12.151,21	\$ 11.575,00	\$ 13.922,50	\$ 13.922,50
TOTAL	\$ 145.764,31	\$ 129.133,20	\$ 151.638,65	\$ 144.346,72
Unit's area (sqm)	226,44	221,50	258,50	258,50
TOTAL (U\$/sqm)	\$ 643,72	\$ 582,99	\$ 586,61	\$ 558,40
Cost reduction based on historical costs		9,43%	8,87%	13,25%

costs of UN2/UN4 (60 days)

ITEM	HISTORICAL COST	UN2 ONLY TARGET	UN4 ONLY TARGET	UN4 TARGET + KAIZEN
Initial preparation	\$ 32.939,14	\$ 33.413,60	\$ 29.684,20	\$ 29.684,20
Structure auxiliary	\$ 18.557,26	\$ 17.948,69	\$ 16.844,10	\$ 16.844,10
Masonry	\$ 6.868,88	\$ 4.610,28	\$ 4.800,76	\$ 4.329,60
Roof	\$ 20.620,88	\$ 17.212,69	\$ 18.531,24	\$ 15.031,17
Covering	\$ 13.987,90	\$ 10.235,93	\$ 10.814,44	\$ 9.251,18
Internal lining	\$ 6.477,17	\$ 3.239,15	\$ 3.257,80	\$ 2.626,56
Internal flooring	\$ 8.438,00	\$ 6.915,94	\$ 7.069,90	\$ 7.069,90
Hydraulics / Electrical	\$ 40.469,60	\$ 31.561,97	\$ 40.798,94	\$ 38.956,85
Cooling system	\$ 24.487,83	\$ 25.403,66	\$ 25.929,73	\$ 24.487,00
Glasses and frames	\$ 21.946,68	\$ 18.247,74	\$ 17.754,10	\$ 13.400,70
External area	\$ 25.908,25	\$ 22.991,44	\$ 22.042,02	\$ 22.042,02
Toilet accessories	\$ 1.055,04	\$ 616,87	\$ 697,06	\$ 697,06
Final services (cleanness, support)	\$ 2.608,47	\$ 2.974,44	\$ 3.066,70	\$ 3.066,70
Cabling	\$ 8.500,00	\$ 8.849,64	\$ 8.638,84	\$ 7.625,00
Visual communication	\$ 29.865,67	\$ 26.320,44	\$ 25.272,52	\$ 25.272,52
Furniture	\$ 27.500,00	\$ 28.631,18	\$ 27.949,18	\$ 27.949,19
Security system	\$ 12.111,56	\$ 12.025,92	\$ 11.678,47	\$ 11.678,47
TOTAL	\$ 302.342,30	\$ 271.199,58	\$ 274.830,00	\$ 260.012,20
Unit's area (sqm)	364,23	358,15	364,00	364,00
TOTAL (U\$/sqm)	\$ 830,09	\$ 757,22	\$ 755,03	\$ 714,32
Cost reduction based on historical costs		8,78%	9,04%	13,95%

CONCLUSIONS

- The application is still exploratory in nature and can be considered as an **initiative towards the application of concepts of target and kaizen costing on civil construction;**
- In order to achieve even better results, it will be necessary **to apply these tools to more units,** not simultaneously, maintaining the same work team and the same participating companies;
- Our great challenge for continuing the research: **to achieve value enhancement while at the same time reducing costs (BRU context).**

Thank you