

Target Value Design/Delivery TVD *Case PPSHP Alliance*

Jukka Vasara 15.5.2018

Future Hospital 2030, Programme

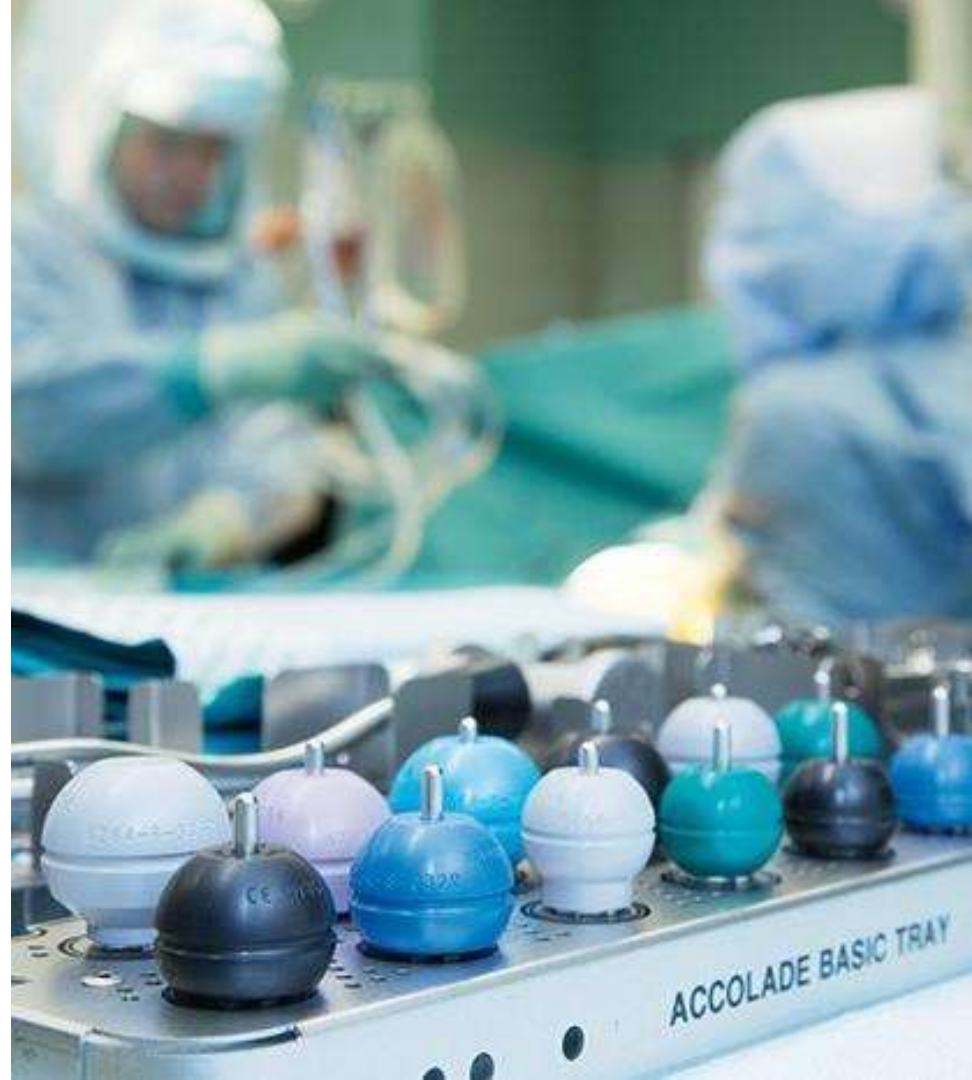
The facilities of Oulu University Hospital were completed in the 1970s and they do not no longer support modern hospital operations or the utilisation of new operational models and technology.



Future Hospital 2030

Programme

There is too little space, the functions are obtrusively apart and obvious renovation needs can be found in all the buildings in the area. The constant development of medicine, the growing expenses of hospital operations and the diminishing resources create their own pressures to the renewal of facilities and operations.



Design

Clear goals

A clear goal in the renewal of hospitals is the flexible use of resources, renewal of professional division of labour, standardisation of facilities and operations, utilisation of information systems and technology, efficient logistic solutions, comfortable facilities, multifunctionality and versatility, as well as energy efficiency and the use of renewable energy sources.



Main figures in Future Hospital 2030



~ 900 M €

INVESTMENTS

Buildings and equipments ca. 4-6%
from lifetime costs during 30 years



26,6 billion €

OPERATION COSTS

during 30 years operation, based on
current 3% annual increase in costs



- 5,6 billion €

POTENTIAL SAVINGS

decreasing operation costs from 3 to
1,5 %



10 - 15%

COST EFFICIENCY

performance increase 10 - 15%



3-5

PROJECTS

programme will be executed in
separate projects



- 40%

ENERGY EFFICIENCY

implementing new technologies there
are 40 to 50 % saving potential in
maintenance costs

TVD

Target Value Design

The alliance is controlled by "value for money" principle, which means the benefits of the relationship between their costs and risks. In other words, it is the quality and cost-optimized complex, which meets the objectives set by the Subscriber.



Target Value Design -principles of the procedure

1. The scope of the project and the status of the program shall be defined in such a way that it is possible to achieve the cost target.
2. Checking the status of the program, whether the Subscriber's functional, cost-and other targets. If not, return to step 1
3. The cost of building components and systems will be set targets, as well as the technical and qualitative requirements and the design will be controlled in line with the objectives
4. the shape of the building, as well as the main structure and system options are made in such a

- way that it is possible to achieve the cost target.
5. Checking whether or not the plan meets the functional, cost-and other targets. If not, return to step 3.
6. Select the other design solutions in such a way that the cost objective will be met.
7. Checking the conformity of the objectives of the plan. If all of the Subscriber's goals will not be possible to achieve by the cost framework, the target will be checked

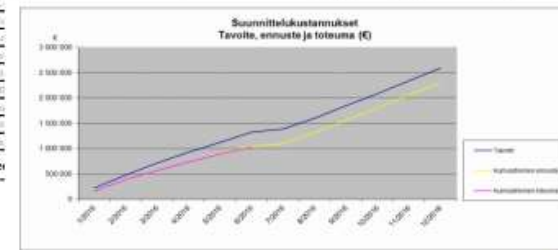
TVD principles in the development stage

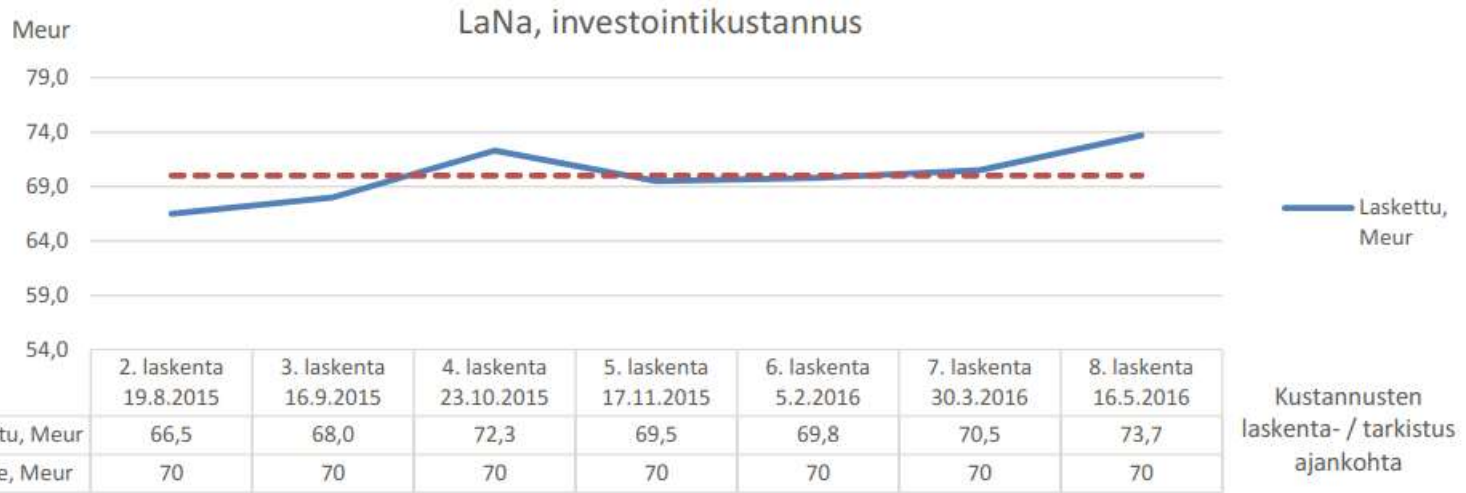
The resource plan (week 36) => Hours and cost objectives at person levels

| Yritys / Henkilö | Rooli | Tuntia h | | | | |
|--|--------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | 1/2016 | 2/2016 | 3/2016 | 4/2016 | 5/2016 |
| UKI Arkkitehdit Oy | | | | | | |
| Mikko Heikkinen | ark-suunnittelun koordinaointi | 40 | 40 | 30 | 30 | 25 |
| Antti Vanhala | pääsuunnittelijan varahenkilö | 15 | 15 | 15 | 15 | 15 |
| Raija-Liisa Miesmaa | arkkitehtisuunnittelu | 80 | 80 | 80 | 80 | 80 |
| Teuvo Tuorila | arkkitehtisuunnittelu | 100 | 100 | 80 | 80 | 80 |
| Pauli Koivisto | arkkitehtisuunnittelu | 30 | 30 | 30 | 25 | 25 |
| Sasu Alasentie | arkkitehtisuunnittelu | 70 | 70 | 70 | 70 | 70 |
| Tarja Fors | arkkitehtisuunnittelu | 60 | 60 | 40 | 40 | 0 |
| Juha Märsy | arkkitehtisuunnittelu | 50 | 50 | 50 | 50 | 50 |
| Janne Kursti | tietomallikoord. varahenkilö | 0 | 0 | 0 | 0 | 0 |
| Tunnit yhteensä | | 445 | 445 | 395 | 390 | 345 |
| Tunnit kumulatiivinen | | | | | | |
| Veloitus työn osuudesta / UKI ARK | | 27 732 € | 27 732 € | 24 616 € | 24 305 € | 21 500 € |
| keskilaskutusinta | | 62,32 | | | | |
| Käyttäjälähtöinen suunnittelu, UKin osuus 1/3 | | | | | | |
| | | 40 | 60 | 60 | 60 | 60 |
| Käyttäjälähtöinen suunnittelu, Valocomp+Tuulikki | | | | | | |
| | | 80 | 120 | 120 | 120 | 120 |
| Tunnit yhteensä | | 120 | 180 | 180 | 180 | 180 |
| Tunnit kumulatiivinen | | | | | | |
| Veloitus työn osuudesta / käyttäjäläht. suunnittelu | | 14 824 € | 22 235 € | 22 235 € | 22 235 € | 22 235 € |
| keskilaskutusinta | | 123,53 | | | | |
| Matka- ja majoituskulut** | | | | | | |
| | | 0 € | 0 € | 0 € | 0 € | 0 € |
| Toimitila- ja ATK-kulut** | | | | | | |
| | | 0 € | 0 € | 0 € | 0 € | 0 € |
| Muut kulut | | | | | | |
| | | 0 € | 0 € | 0 € | 0 € | 0 € |
| UKI Arkkitehdit Oy Yhteensä | | 42 556 € | 49 967 € | 46 852 € | 46 540 € | 43 736 € |

Cost and hours monitoring 1 session/month => Company-specific monitoring

| TULSA OYS 2030 / LANA | | Toteutusvaiheen suunnittelukustannusten seuranta | | | Laskutus | | | | Kustannus- | | | | |
|--------------------------------------|----------------|--|----------------|------------------|----------------|---------------------|------------------------------------|-------------|------------|---------|---------|--|--|
| | | Tavoite | | | Sidottu | Laskutettu yhteensä | Laskuttamatta suhteessa budjettiin | ennuste | Budj-Enn | Enn-Tot | Tot/Enn | | |
| Suunnitteluyhymän kustannukset | | 1 | 2 | 3 | 1-3 | 1-ennuste | | | | | | | |
| Rakennuttaminen | 435 501 | 435 501 | 256 515 | 374 986 | 371 234 | 60 267 | 114 718 | 69 % | | | | | |
| A-Innostus | 303 167 | 182 360 | 127 690 | 54 473 | 133 805 | 98 470 | 4 020 | 97 % | | | | | |
| Prosessi | 389 141 | 249 141 | 128 625 | 120 517 | 239 543 | 8 791 | 110 717 | 54 % | | | | | |
| Pää- ja arkkitehtisuunnittelu | 700 041 | 700 041 | 271 759 | 428 281 | 583 369 | 116 672 | 311 609 | 47 % | | | | | |
| Tarhi-Set | 261 081 | 261 081 | 42 835 | 239 247 | 173 790 | 110 361 | 128 947 | 25 % | | | | | |
| Uu-arkkitehdit | 211 340 | 211 560 | 128 066 | 83 491 | 239 140 | -7 580 | 91 074 | 58 % | | | | | |
| Lähtöarvot | 206 400 | 206 400 | 100 658 | 105 543 | 193 448 | 15 952 | 91 501 | 52 % | | | | | |
| Toiminnallinen suunnittelu | 277 758 | 277 758 | 135 467 | 142 291 | 245 945 | 31 813 | 110 478 | 55 % | | | | | |
| A-innostus | 27 640 | 27 640 | 26 977 | 93 661 | 63 817 | 14 353 | 35 360 | 43 % | | | | | |
| Arkkitehdit | 200 118 | 200 118 | 108 490 | 91 621 | 182 801 | 17 511 | 74 218 | 59 % | | | | | |
| Rakennus-suunnittelu | 262 675 | 262 675 | 83 869 | 178 806 | 210 269 | 52 406 | 126 400 | 40 % | | | | | |
| Tote-suunnittelu | 624 380 | 624 380 | 273 450 | 350 930 | 638 876 | -14 490 | 365 430 | 43 % | | | | | |
| Arkkitehdit (Suomen) | 300 185 | 300 185 | 213 236 | 286 354 | 322 686 | -22 500 | 309 460 | 41 % | | | | | |
| Arkkitehdit (Tampere) (LPE) | 124 205 | 124 205 | 60 224 | 63 979 | 116 184 | 8 011 | 95 960 | 52 % | | | | | |
| Ennen-suunnittelu + varaus | 298 000 | 298 000 | 64 223 | 233 677 | 219 123 | 78 877 | 154 800 | 29 % | | | | | |
| UKI-suunnittelu | 17 000 | 17 000 | 0 | 17 000 | 0 | 17 000 | 0 | 100 % | | | | | |
| UKI | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 % | | | | | |
| UKI | 23 580 | 23 580 | 8 589 | 8 000 | 8 000 | 0 | 8 000 | 66 % | | | | | |
| UKI | 20 000 | 20 000 | 0 | 15 000 | 25 % | | | | | | | | |
| UKI | 4 494 | 4 494 | -4 494 | 0 | 100 % | | | | | | | | |
| UKI | 13 911 | 13 911 | 2 080 | 8 000 | 42 % | | | | | | | | |
| UKI | 25 340 | 25 340 | 24 623 | 23 000 | 9 % | | | | | | | | |
| UKI | 26 544 | 26 544 | 3 000 | 14 400 | 45 % | | | | | | | | |
| UKI | 23 000 | 23 000 | 23 000 | 23 000 | 0 % | | | | | | | | |
| Yhtei | | 2 208 810 | 325 545 | 1 183 426 | 48 % | | | | | | | | |





2. Updated infra changes and the cost of the helicopter field

3. Technical facilities and corridor spaces are larger than planned

4. Teaching, research and administration spaces added

5. Cost saving workshop findings

6. The wards are modified to comb-model

7. The calculations focused to the building block-level

8. Contractor workshop feedback

Big change

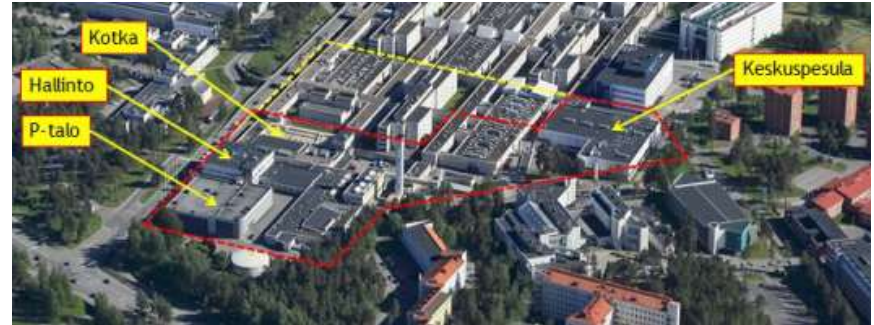
Email from subscriber 15.4.2018

- The design and construction of the technical implementation of the Alliance will be suspended – so far
- "In a rapidly changing policy environment, big changes have been made (SOTE solutions, regulation of centralization, and the needs for uninterrupted surgery) , that has an impact on the progress of the implementation phase of the project in the original schedule. It affects the location of the building, the functional content, format and size of the building."

In the project will begin the development phase 2

The options being studied

Existing Master Plan



Value for money

The progress

- Updated Master Plan
- Takes into account the changed operating environment
- Assessing the impact of the accelerated timetable (benefits, disadvantages, risks)
- Executive Board 14.5.2018
- Hospital Council 4.6.2018 => decision



Contact information

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