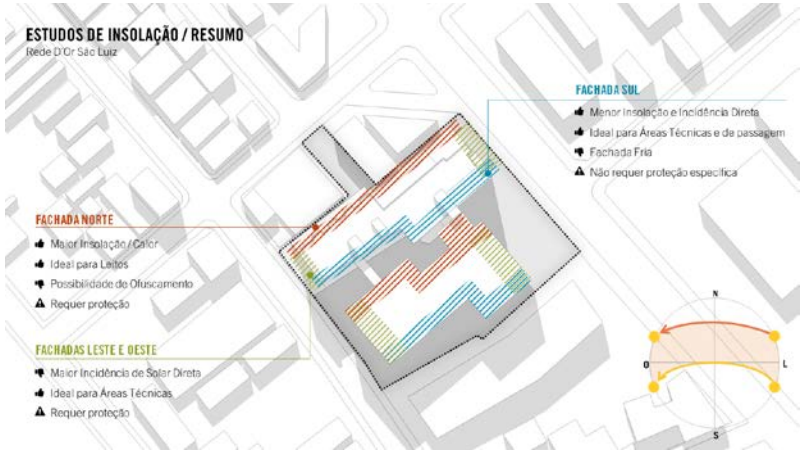
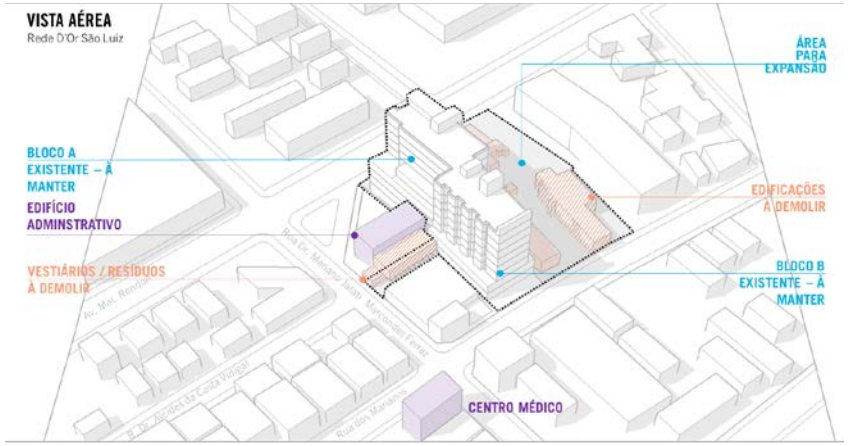
VISUAL
USE AND OCCUPANCY PROGRAM





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01 / Introduction

02 / Research

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01 /

INTRODUCTION

The healthcare sector in Brazil usually does not use any kind of technology or software to change the experience of the client. During the Use and Occupancy Program discussions, an excel spreadsheet with all the calculations and metrics or a word document as a report are presented. The entire process of defining a hospital program and its proportions is based in a background full of market expertise, Brazilian standards (RDC50), client operational characteristics, estimate and calculations.

At this beginning, we have a lot of numbers to present to our client and usually he doesn't know exactly what he wants and has some difficulty to understand the proportion of what he is asking in the hospital program and how departments are connected to one another.

It's important to highlight the fact that the most important Brazilian healthcare standard is the RDC50 by ANVISA, and its latest version is from 2002. Since then until 2019, there has been a great many changes in healthcare architectural concept, hospital equipment and hospital operation, thus making some of its information outdated. This makes it trickier especially for clients, and many times they will request things that are not according to the standards. As an architecture firm we must know what can be reconsidered and what cannot be done in the project and we have to have a really clear project history to legally protect ourselves.

ANVISA

Brazilian National Health Surveillance Agency

With that in mind, the need to present all this information in a friendly and easy way to understand naturally appears. The Healthcare department at P+W São Paulo is still new and growing, we are developing our database and establishing how we want to communicate to our client.

CHALLENGES

The client asking for things that are not in accordance with the standards.

The client does not have a clear idea of what he wants as program.

The client also does not have the understanding of how the departments are interconnected. A good example of that is that they usually want more and more beds, but have a hard time accepting the support area needed for the desired amount of beds.

It’s a slow process. We go to a meeting with a proposal, the client asks to change the quantity of something and the calculations must be redone and presented again a few days later for validation.

GOALS

Organize metrics

Friendly Interface – for our clients and our team

Project process history

Transform the process into a product

Become more efficient in our communication

Faster and easier preview of project information

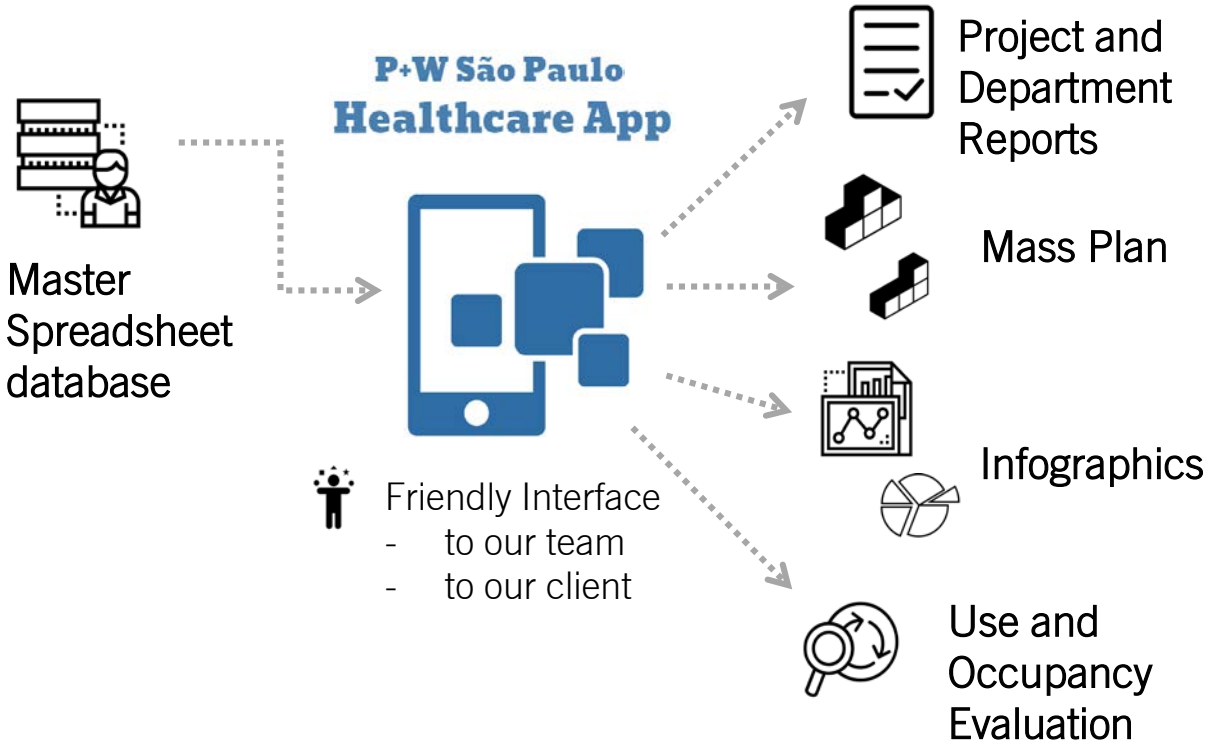
Support the client to have a better understanding of the hospital programming

FIRST IDEA – P+W São Paulo Healthcare App

Develop a unique tool that goes beyond the current global practices. Develop an App.

As a result to our clients:
Friendly interface that shows all the essential numbers and results.

As a result to the users:
A database organized and easy to work with, without losing control of the information.



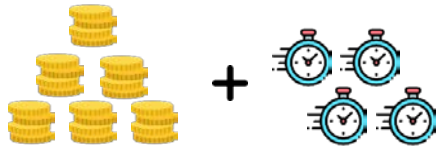
02 /

RESEARCH

1º Step: Start our process researching how an App is developed and what are the needs that our spreadsheets should attend for later use.

We spoke with three specialized companies and one consultant, and they gave us an estimate cost of 1 million reais and one year to develop an App that would get close to what we wanted, but probably without the mass plan studies.

The cost was too high even thinking in a long term project and analyzing once again our goal we thought that we could achieve good part of it using a different tool.
Besides the budget and time issue, developing an app implies in doing its maintenance through the years and this would implicate in more expense.



2º Step: Using a software already in the market would make it easier, cheaper and still possible to achieve our goals.

Power BI from Microsoft was the chosen software. It's a business intelligence platform that you can analyze and visualize data.

It definitely changes the communication, the graphs and interactions make it easier to understand all the info.

The user's interface is fairly intuitive. It's also possible to create reports and share with intended people.

It's a tool that have been more commonly used in Brazil for a year and half, but not in the architecture area.

POWER BI STRUCTURE

- PW database
- Client Information
- Previous experience

Operational Metrics

Spreadsheet by department

Spreadsheet by department

Spreadsheet by department

- Project description
- Indicators
- Patient area x support area x circulation area
- Estimated total cost
- Estimated total area
- Estimated number of employees

03 /

PROCESS

The Inpatient Ward Spreadsheet was the chosen one to star this project.

This is what the final result will look like.

AT POWER BI, WE WILL HAVE A COVER FOR EACH PROJECT AND ONE TAB FOR EACH DEPARTMENT.

The picture will change according to the client

Use and Occupancy Program
Hospital's name
Date

Client Logo

Cover

Inpatient Ward

Other department tabs

Programa de Uso e Ocupação: Internação

No. Leito	
42	

Internação	UTI
29	13

Cirurgica	Clínica
23	6

Área Estimada Total do Hospital (m2)
5040

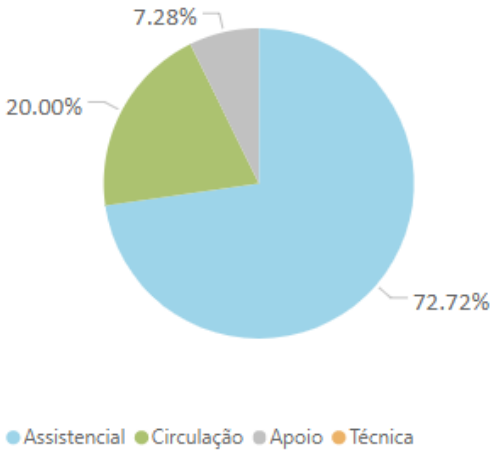
No. Estimado Colaboradores
252

Custo Total Estimado
R$30,240K

Selecione o Tipo de Proposta

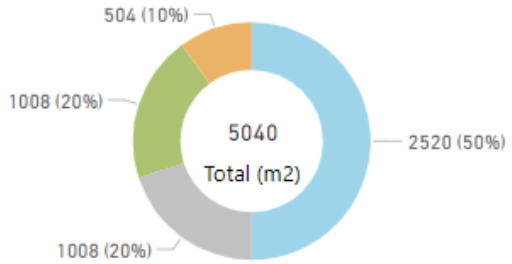
Perkins + Will | Cliente

Area (m^2) x Uso Internação

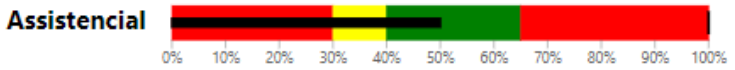


Apoio	42.40 Total area (m^2)
Assistencial	423.60 Total area (m^2)
Circulação	116.50 Total area (m^2)
Técnica	0.00 Total area (m^2)

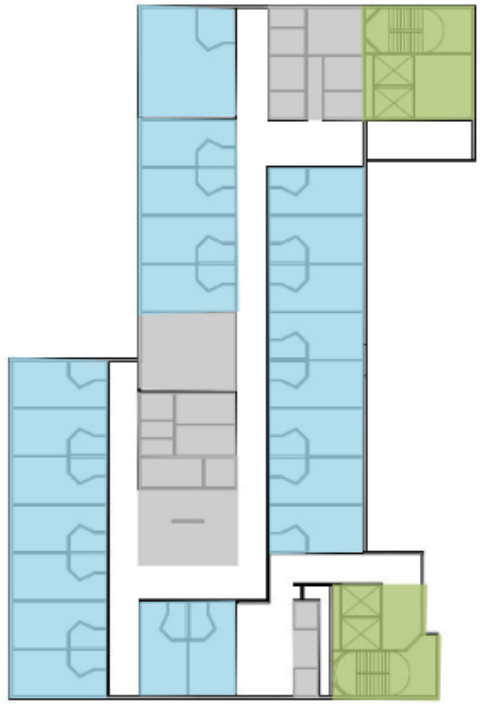
Distribuição das Áreas x Setores (Hospital Geral)



Eficiência dos Espaços



Layout Hospital Geral



PERKINS+WILL

LOGO DO CLIENTE

FILTERS

Inpatient Ward

Capa | Internação | Centro Cirúrgico | UTI | Pronto Socorro | SADT | Apoio Logistico

Programa de Uso e Ocupação: Internação

Use and Occupancy Program: Inpatient Ward

Nº of Beds

No. Leito
42

Inpatient Ward / ICU

Internação	UTI
29	13

Surgical / Clinical

Cirurgica	Clínica
23	6

Total estimated hospital area

Área Estimada Total do Hospital (m2)
5040

Estimated number of employees

No. Estimado Colaboradores
252

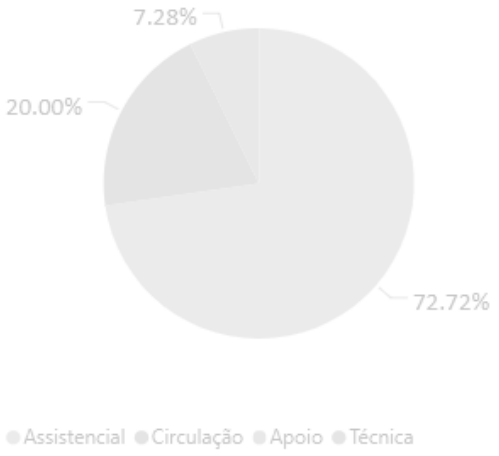
Estimated total cost

Custo Total Estimado
R$30,240K

Selecione o Tipo de Proposta

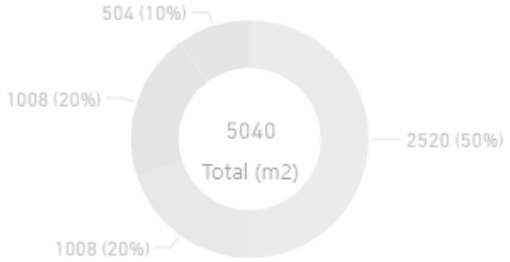
Perkins + Will | Cliente

Area (m²) x Uso Internação

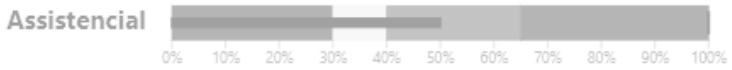


Apoio	42.40 Total area (m²)
Assistencial	423.60 Total area (m²)
Circulação	116.50 Total area (m²)
Técnica	0.00 Total area (m²)

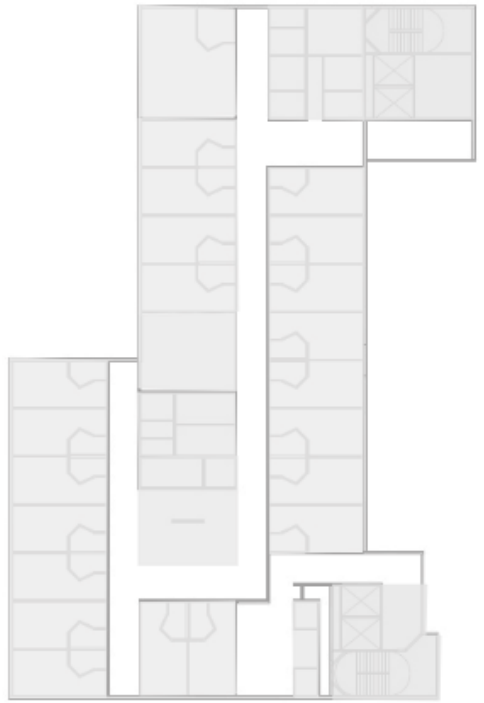
Distribuição das Áreas x Setores (Hospital Geral)



Eficiência dos Espaços



Layout Hospital Geral



PERKINS+WILL

LOGO DO CLIENTE

FILTERS

Capa | Internação | Centro Cirúrgico | UTI | Pronto Socorro | SADT | Apoio Logistico

Programa de Uso e Ocupação: Internação

Button to select P+W proposoal

Button to select Client Request

Selecione o Tipo de Proposta

Perkins + Will | Cliente

Internação	UTI
29	13

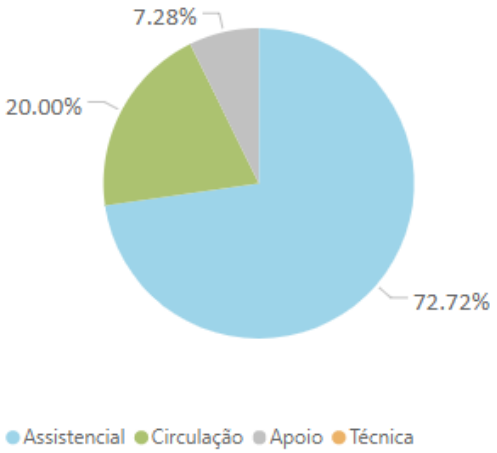
Cirurgica	Clínica
23	6

Área Estimada Total do Hospital (m2)
5040

No. Estimado Colaboradores
252

Custo Total Estimado
R$30,240K

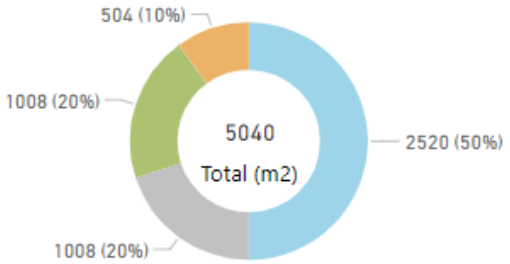
Area (m^2) x Uso Internação
Area m^2 x Use of the Inpatient Ward



Apoio 42.40 Total area (m^2)	Support
Assistencial 423.60 Total area (m^2)	Assistential
Circulação 116.50 Total area (m^2)	Circulation
Técnica 0.00 Total area (m^2)	Technical

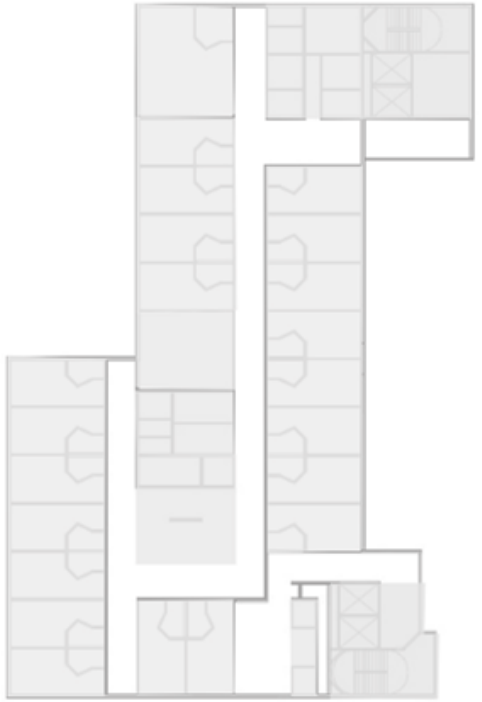
Distribuição das Áreas x Setores (Hospital Geral)

Distribution of areas X sectors (entire hospital)



Eficiência dos Espaços

Layout Hospital Geral



PERKINS+WILL

LOGO DO CLIENTE

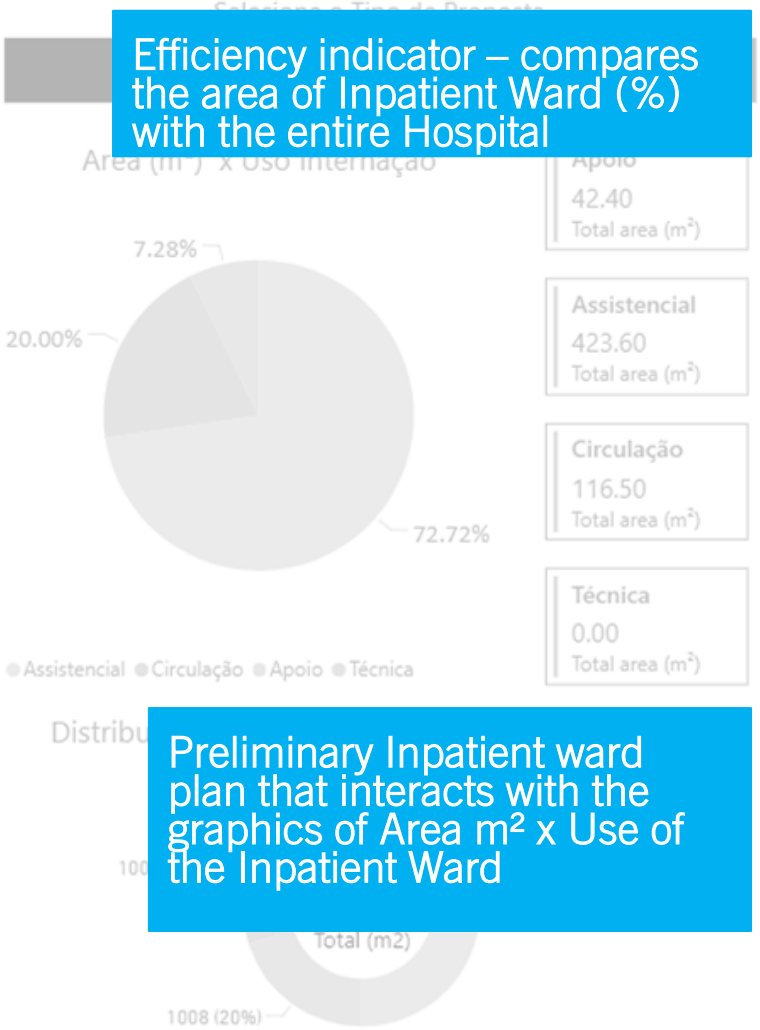
FILTERS

Capa | Internação | Centro Cirúrgico | UTI | Pronto Socorro | SADT | Apoio Logistico

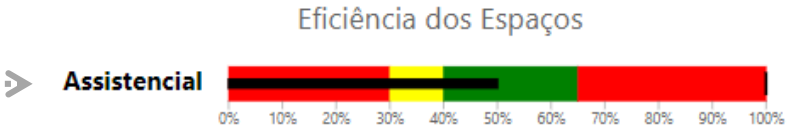
Programa de Uso e Ocupação: Internação

No. Leito	
42	
Internação	UTI
29	13
Cirurgica	Clínica
23	6
Área Estimada Total do Hospital (m2)	
5040	
No. Estimado Colaboradores	
252	
Custo Total Estimado	
R$30,240K	

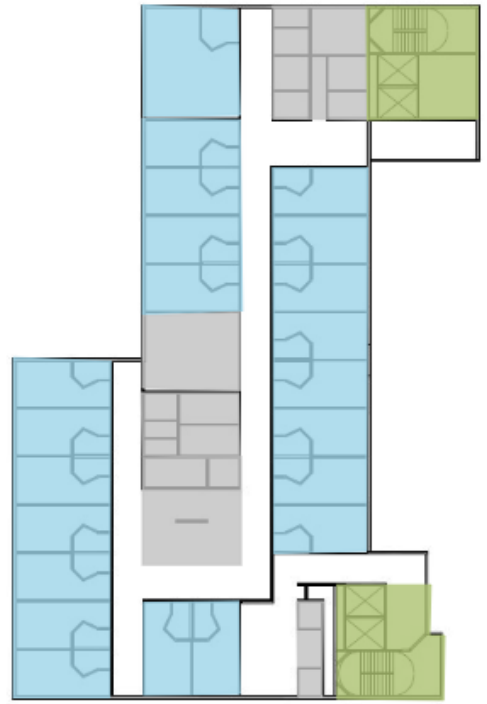
Efficiency indicator – compares the area of Inpatient Ward (%) with the entire Hospital



Preliminary Inpatient ward plan that interacts with the graphics of Area m² x Use of the Inpatient Ward



Layout Hospital Geral



PERKINS+WILL

LOGO DO CLIENTE

FILTERS

Capa | Internação | Centro Cirúrgico | UTI | Pronto Socorro | SADT | Apoio Logistico

1ªSTEP Transform RDC50 standard into a excel spreadsheet. That helps our time to follow the minimum areas and spaces required by norm. Besides that, that's the way our team is used to work. Create a third column for our client's requests (this will be explained a little bit further).

Areas		Brazilian standards		P+W Project Plan			Client request		
Area Type	**Room Name**	**Standards**	**Area (m²)**	**Quantities**	**Area (m²)**	**Total area (m²)**	**Quantities**	**Area (m²)**	**Total area (m²)**
Patient area	Ensuite - Single bed	-	10,00	40	10,00	400,00	40	10,00	400,00
	Ensuite isolation	1 per 30 adult normal room or less	10,00	2	10,00	20,00	2	10,00	20,00
	Ensuite isolation vesibule	-	1,80	2	1,80	3,60	2	1,80	3,60
Total patient area						**420,00**			**420,00**
Support	Nursing station	1 per 30 beds	6,00	2	6,00	12,00	1	6,00	6,00
	Service room	1 per nursing station	5,70	2	5,70	11,40	1	5,70	5,70
	Exams and dressing room	1 per 30 beds	7,50	2	7,50	15,00	1	7,50	7,50
	Medical prescription area	-	2,00	2	2,00	4,00	1	2,00	2,00
Total support area						**42,40**			**21,20**
Total circulation area		25% of assistance + support area				**221,50**			**216,20**
Total department area						**683,90**			**657,40**

2ªSTEP Transform this sheet into the language that Power Bi understands. It is important to divide into one spreadsheet with P+W proposal and another with the client request. Since this is not a friendly interface to work with, this only exists as an input to Power Bi and must not be manipulated by our team.

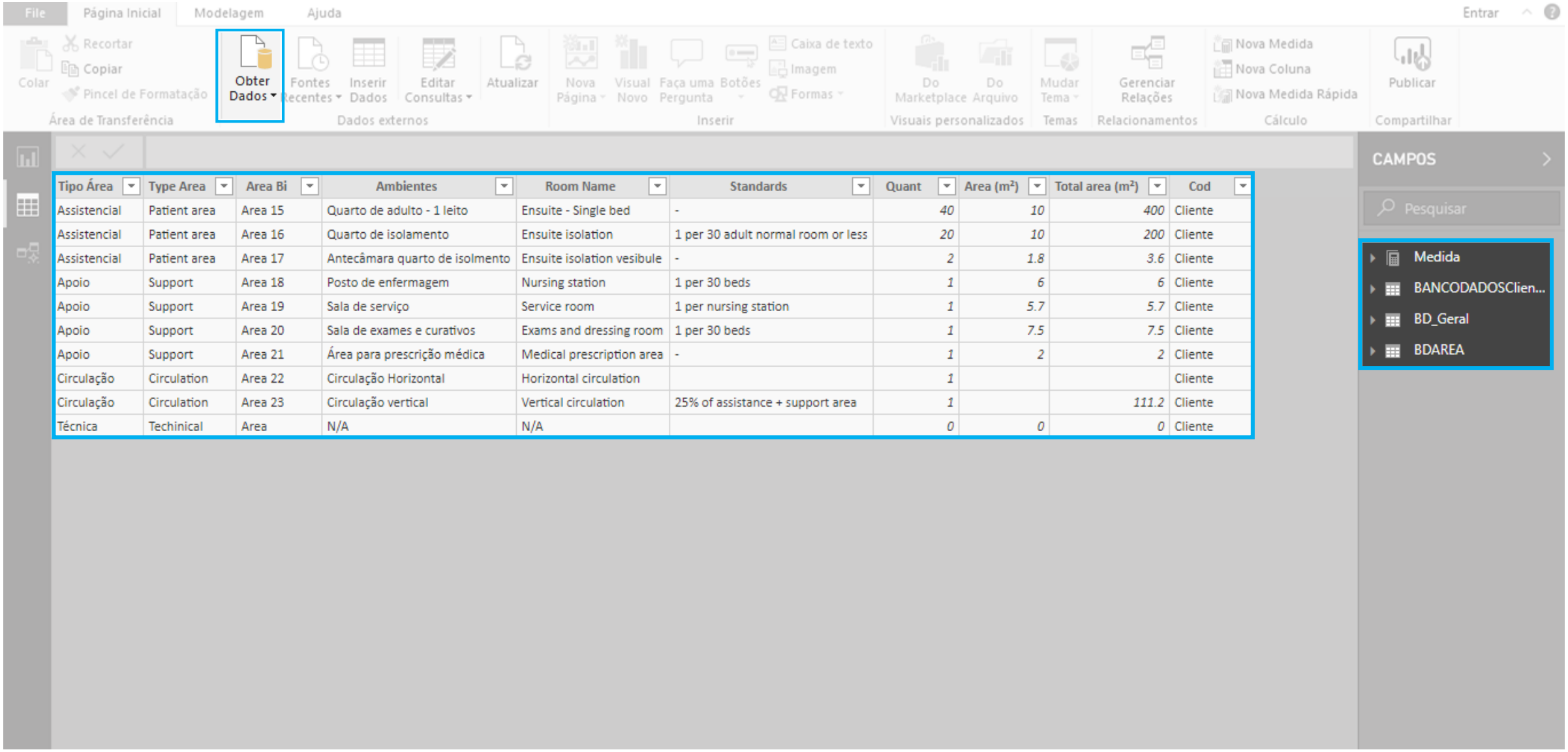
P+W Power Bi Spreadcheet

Cod	Tipo Área	Type Area	Area Bi	Ambientes	Room Name	Standards	Quant	Area (m²)	Total area (m²)
PW	Assistencial	Patient area	Area 15	Quarto de adulto - 1 leito	Ensuite - Single bed	-	60	10.00	600.00
PW	Assistencial	Patient area	Area 16	Quarto de isolamento	Ensuite isolation	1 per 30 adult normal room or less	2	10.00	20.00
PW	Assistencial	Patient area	Area 17	Antecâmara quarto de isolmento	Ensuite isolation vesibule	-	2	1.80	3.60
PW	Apoio	Support	Area 18	Posto de enfermagem	Nursing station	1 per 30 beds	2	6.00	12.00
PW	Apoio	Support	Area 19	Sala de serviço	Service room	1 per nursing station	2	5.70	11.40
PW	Apoio	Support	Area 20	Sala de exames e curativos	Exams and dressing room	1 per 30 beds	2	7.50	15.00
PW	Apoio	Support	Area 21	Área para prescrição médica	Medical prescription area	-	2	2.00	4.00
PW	Circulação	Circulation	Area 22	Circulação Horizontal	Horizontal circulation		1		
PW	Circulação	Circulation	Area 23	Circulação vertical	Vertical circulation	25% of assistance + support area	1		116.50
PW	Técnica	Techinical	Area	N/A	N/A		0	0.00	0.00

Client Power Bi Spreadcheet

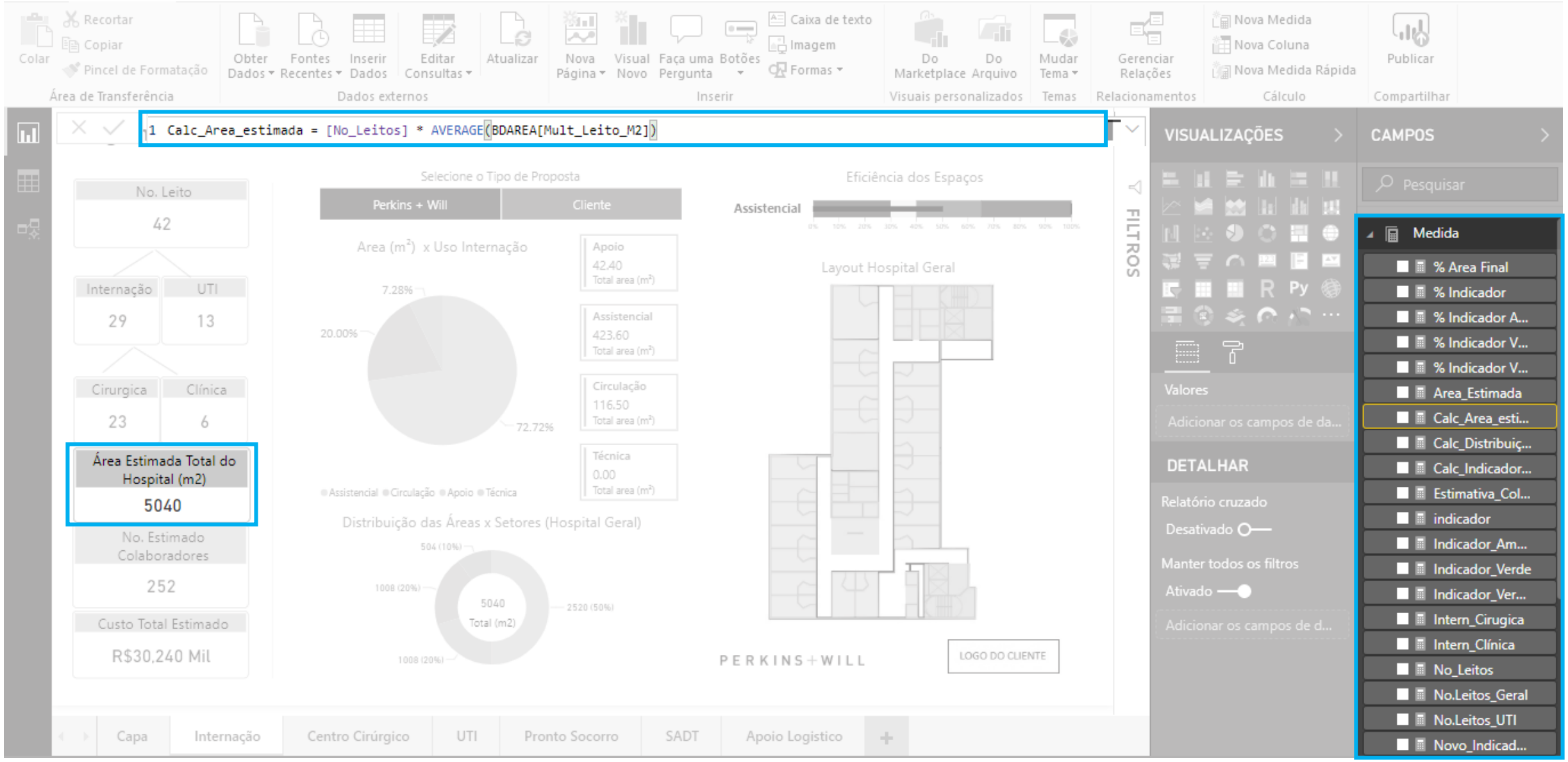
Cod	Tipo Área	Type Area	Area Bi	Ambientes	Room Name	Standards	Quant	Area (m²)	Total area (m²)
Cliente	Assistencial	Patient area	Area 15	Quarto de adulto - 1 leito	Ensuite - Single bed	-	40	10.00	400
Cliente	Assistencial	Patient area	Area 16	Quarto de isolamento	Ensuite isolation	1 per 30 adult normal room or less	20	10.00	200
Cliente	Assistencial	Patient area	Area 17	Antecâmara quarto de isolmento	Ensuite isolation vesibule	-	2	1.80	3.6
Cliente	Apoio	Support	Area 18	Posto de enfermagem	Nursing station	1 per 30 beds	1	6.00	6
Cliente	Apoio	Support	Area 19	Sala de serviço	Service room	1 per nursing station	1	5.70	5.7
Cliente	Apoio	Support	Area 20	Sala de exames e curativos	Exams and dressing room	1 per 30 beds	1	7.50	7.5
Cliente	Apoio	Support	Area 21	Área para prescrição médica	Medical prescription area	-	1	2.00	2
Cliente	Circulação	Circulation	Area 22	Circulação Horizontal	Horizontal circulation		1		
Cliente	Circulação	Circulation	Area 23	Circulação vertical	Vertical circulation	25% of assistance + support area	1		111.20
Cliente	Técnica	Techinical	Area	N/A	N/A		0	0	0

3ªSTEP Insert both sheets into Power BI.

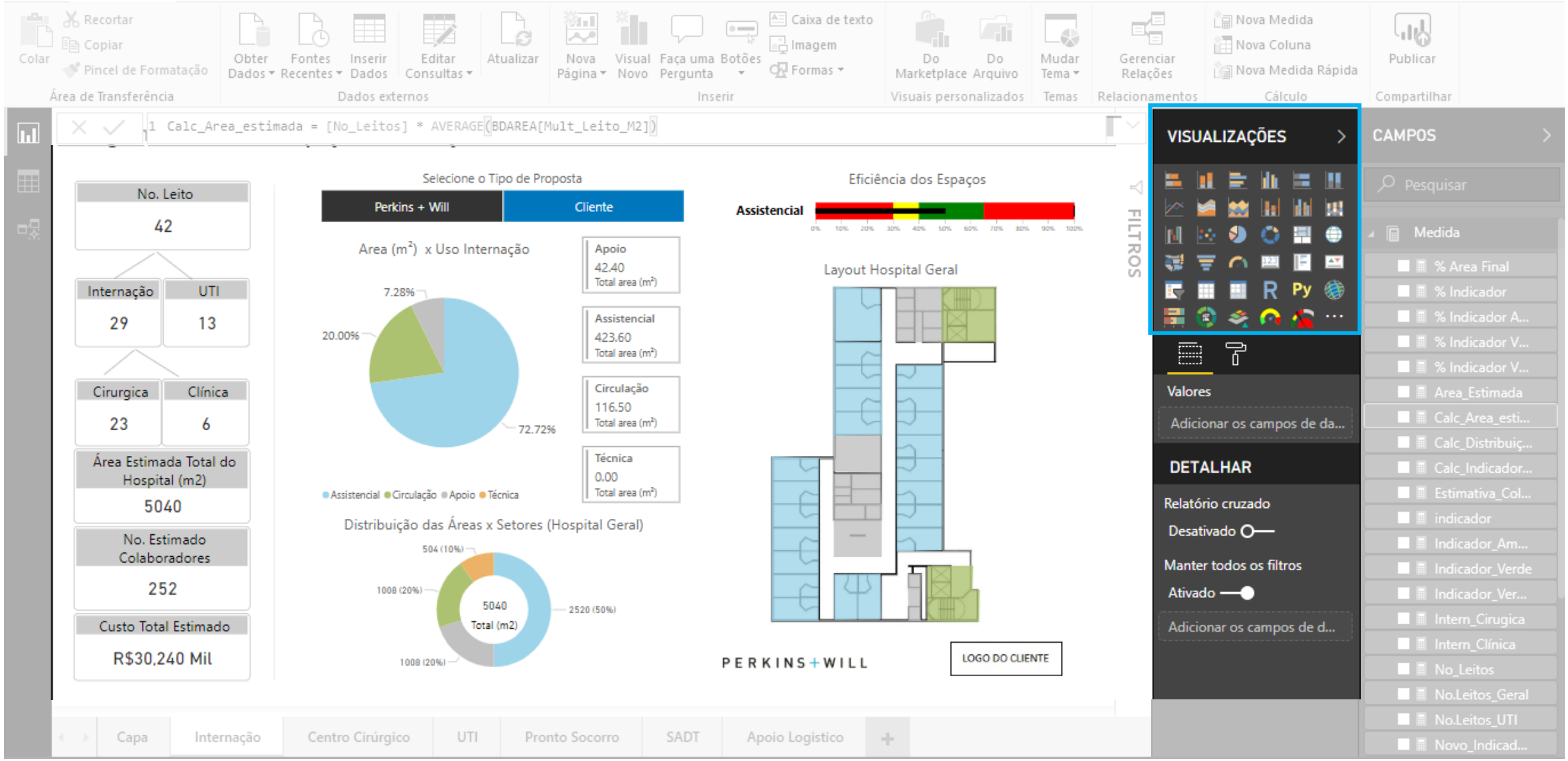


Tipo Área	Type Area	Area Bi	Ambientes	Room Name	Standards	Quant	Area (m²)	Total area (m²)	Cod
Assistencial	Patient area	Area 15	Quarto de adulto - 1 leito	Ensuite - Single bed	-	40	10	400	Cliente
Assistencial	Patient area	Area 16	Quarto de isolamento	Ensuite isolation	1 per 30 adult normal room or less	20	10	200	Cliente
Assistencial	Patient area	Area 17	Antecâmara quarto de isolmento	Ensuite isolation vesibule	-	2	1.8	3.6	Cliente
Apoio	Support	Area 18	Posto de enfermagem	Nursing station	1 per 30 beds	1	6	6	Cliente
Apoio	Support	Area 19	Sala de serviço	Service room	1 per nursing station	1	5.7	5.7	Cliente
Apoio	Support	Area 20	Sala de exames e curativos	Exams and dressing room	1 per 30 beds	1	7.5	7.5	Cliente
Apoio	Support	Area 21	Área para prescrição médica	Medical prescription area	-	1	2	2	Cliente
Circulação	Circulation	Area 22	Circulação Horizontal	Horizontal circulation		1			Cliente
Circulação	Circulation	Area 23	Circulação vertical	Vertical circulation	25% of assistance + support area	1		111.2	Cliente
Técnica	Techinical	Area	N/A	N/A		0	0	0	Cliente

4ªSTEP Add all metrics and calculations inside Power BI.



5ªSTEP Choose the graphics and cards for the dashboard and what are the infos that you want to show



BENEFITS OF USING POWER BI

Intuitive interface for users.

It's possible to create reports of the project and share with the client.

There are two buttons on the dashboard: one with Perkins + Will proposal and other with the client request. After our presentation usually the client asks for changes in the program. The idea is to during the meeting do all the changes in the client's spreadsheet tab and update our Power Bi dashboard to show the client real time what are the implications on the project.

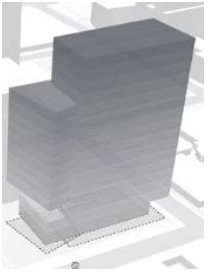
It's cheap to maintain.

It can be visualized on computer, cellphone or tablet.

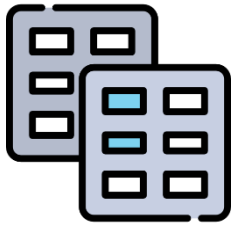
04 /

NEXT STEPS

Make the spreadsheet friendlier to our team



Explore the use the use of Mass Former by Perkins+Will and apply the studies in the dashboards



Develop other department's excel Spreadsheets, Power Bi spreadsheets and Power Bi dashboards

Actually apply in one of São Paulo Projects, to test it and improve

Develop an on line form with all the inputs that we need from our clients operational metrics. With this form it's possible to input directly the info into Power Bi, speeding up the process

Make English – Portuguese Button

I would not be able to do this project without the help of this amazing, strong women.
Lara Kaiser, Leila Ventanila, Andreia Rossi and Deborah Sayao.
Thank you so much!