

THE PRODUCTIVE PHARMACIST: PROCESS AND WORKFORCE PLANNING

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DISCLOSURE

- **CONFLICT OF INTEREST: nothing to disclose**

GENERAL OUTLINE

- INTRODUCTION
- SOCIO-ECONOMIC APPROACH MANAGEMENT APPLIED IN HOSPITAL PHARMACIES
- WHAT IS INTERVENTION-RESEARCH
- SEAM IN HOSPITAL PHARMACIES

SELF ASSESSMENT QUESTIONS

CAN YOU DEFINE TWO KINDS OF COSTS?

1/ Visible costs and hidden costs

2/ Medical device and drug costs

SELF ASSESSMENT QUESTIONS

WHAT IS THE RANGE OF THE HIDDEN COSTS?

1/ 20,000 to 70,000€ per person per year

2/ 15,000 to 30,000€ per person per month

SELF ASSESSMENT QUESTIONS

THE IMPLEMENTATION OF SEAM APPROACH CAN
REDUCE THE HIDDEN COSTS UP TO:

1/ 35-55%

2/ 60-80%

CLINICAL GOVERNANCE CONCEPT

Clinical governance is « to manage a collective activity to develop stakeholders ability in coordinated practices »
(Hatchuel A., 2000)

→reduce patient stay and complex medical acts
(M-P. Pomey, J-L. Denis et A-P. Contandriopoulos, 2008)

MANAGEMENT IS A CLINICAL ACTIVITY

THE PHARMACIST UNKNOWN AND MISUNDERSTOOD!

Pharmaceutical activities are insufficiently known:

- many technical and transverse activities
- underestimated activities in accounting systems

AND HOWEVER,

- Hospital pharmacy is a real transverse key player**
- The pharmacist meets modern management codes:**
 - he stimulates cooperation
 - he incorporates high level standards

→ The pharmacist is a high rightful healthcare manager

SEAM: AN ORGANIZATIONAL CHALLENGE FOR PHARMACY AND HOSPITAL

**TO IDENTIFY RESOURCES AND HIGH VALUE CLINICAL
TIME REDUCING DYSFUNCTION REGULATIONS**

**TO DEVELOP COOPERATION EXPERIENCES ON MEDICINE MANAGEMENT
BETWEEN PHARMACY AND MEDICAL CARE UNITS**

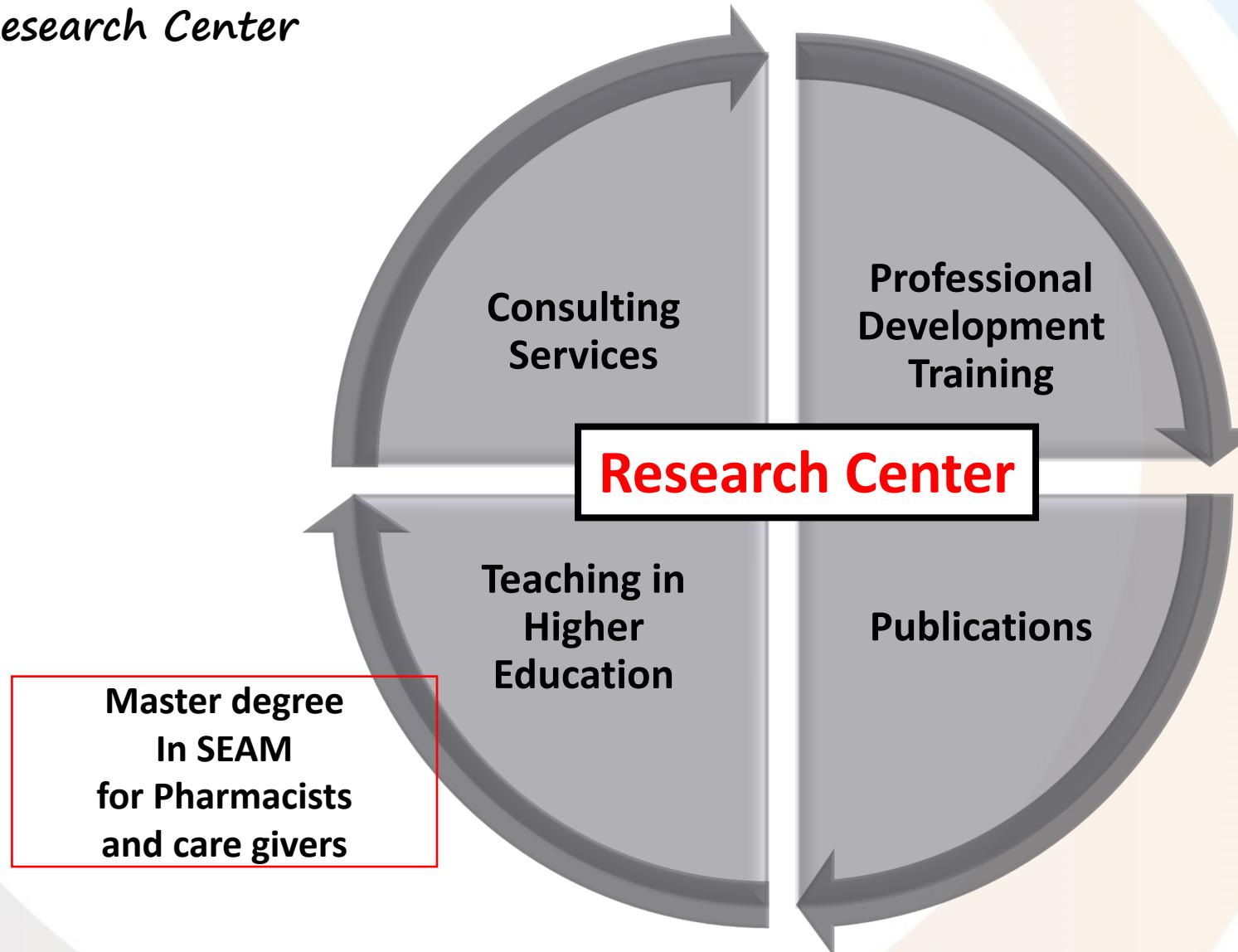
Who are we?

ISEOR Research Center

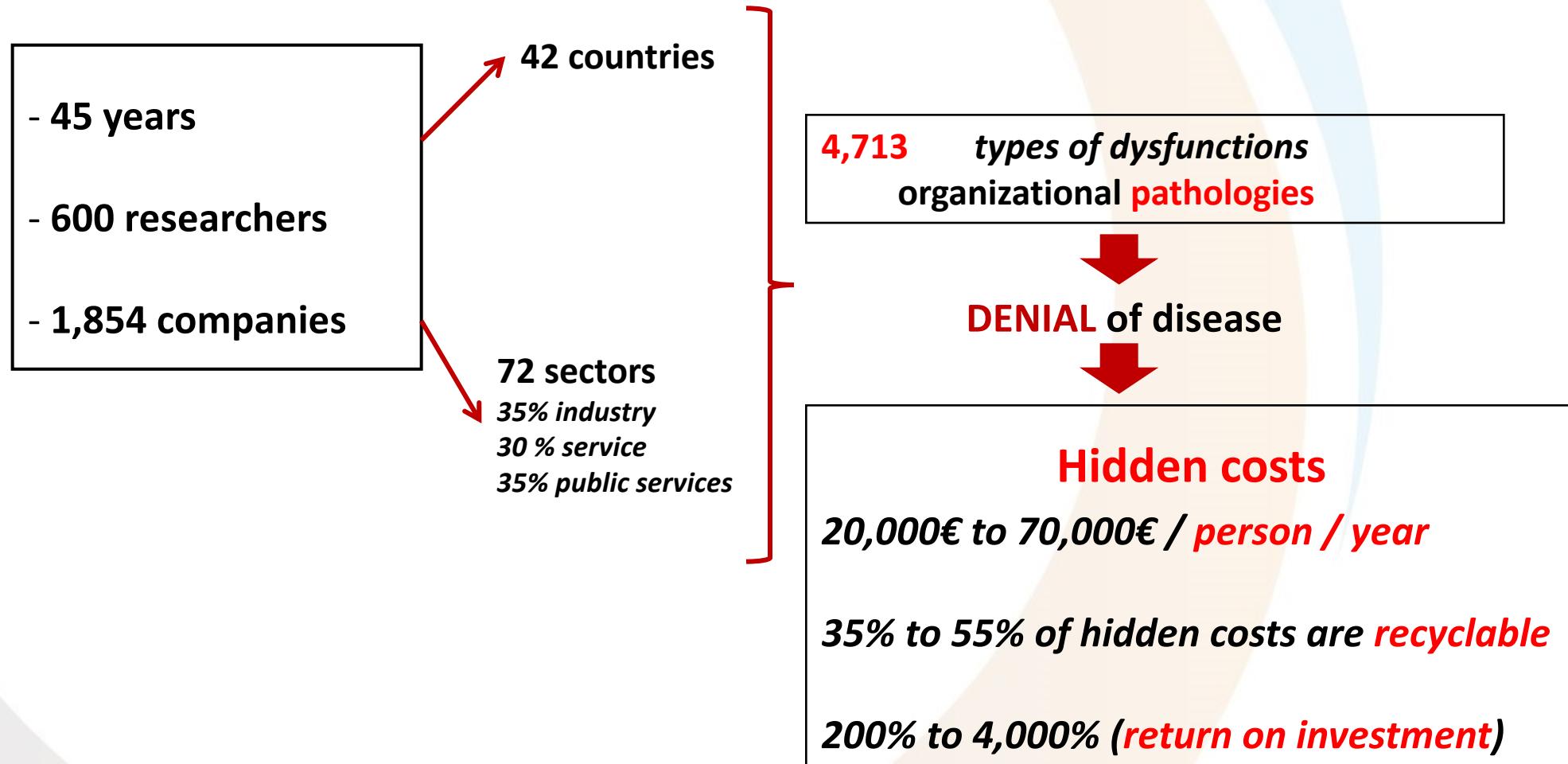
- Research center in management, associated with IAE Business School, U. Jean Moulin Lyon 3, France, founded in 1974 by Dr Henri Savall**
- 30 full-time employees & more than 50 consulting partners**
→ *Cap O2 is a Scientific consultancy society affiliated to ISEOR*
- More than 100 active clients-companies and organizations in Europe, North America, Latin America & Middle East**
- “Socio-Economic Approach to Management” (SEAM) : the result of a scientific approach to consulting**

What do we do?

ISEOR Research Center



Dysfunctions and Hidden Costs

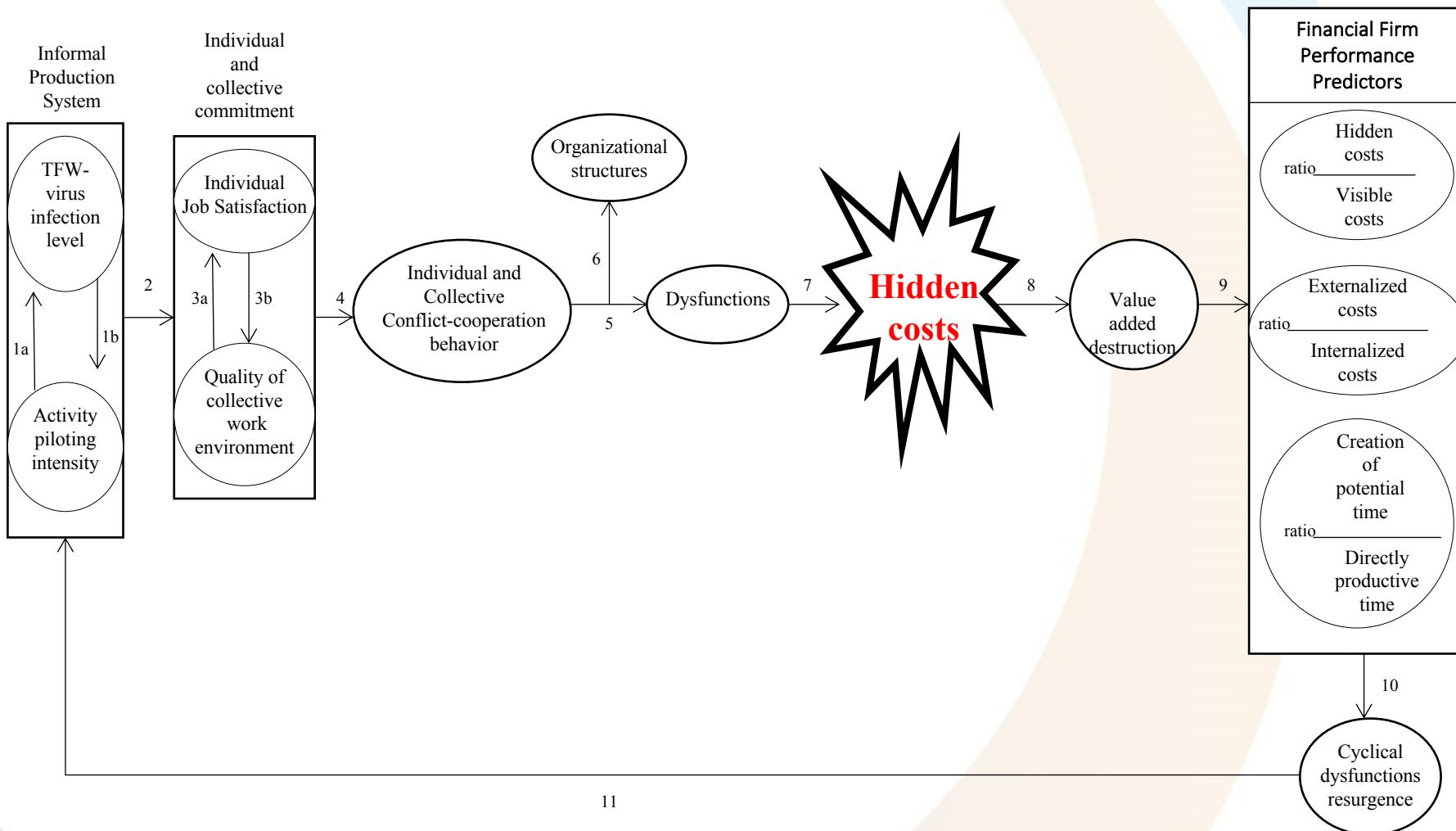


SEAM discoveries

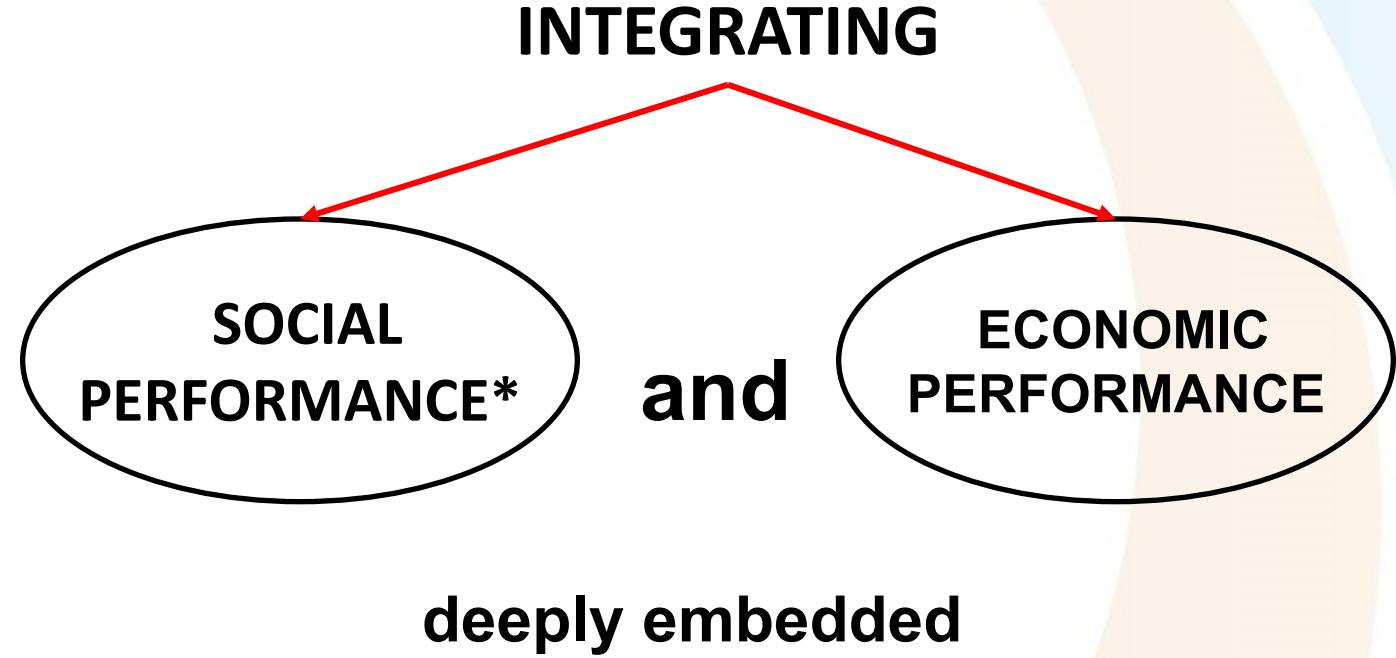
- **4,713 generic Dysfunctions (organizational pathologies)**
- Hidden costs from **€20,000 to €70,000/p/year**
- **35 to 55% of hidden costs are recyclable into added-value**
- Sustainable performance increases thanks to **intangible investment in human potential development**
- This kind of investment has a very high **return on investment: between 2 and 40** (€1 brings back €2 to €40)

**Any organization can self-finance its survival and development,
by recycling periodically its hidden costs**

General presentation of the hidden costs socioeconomic theory

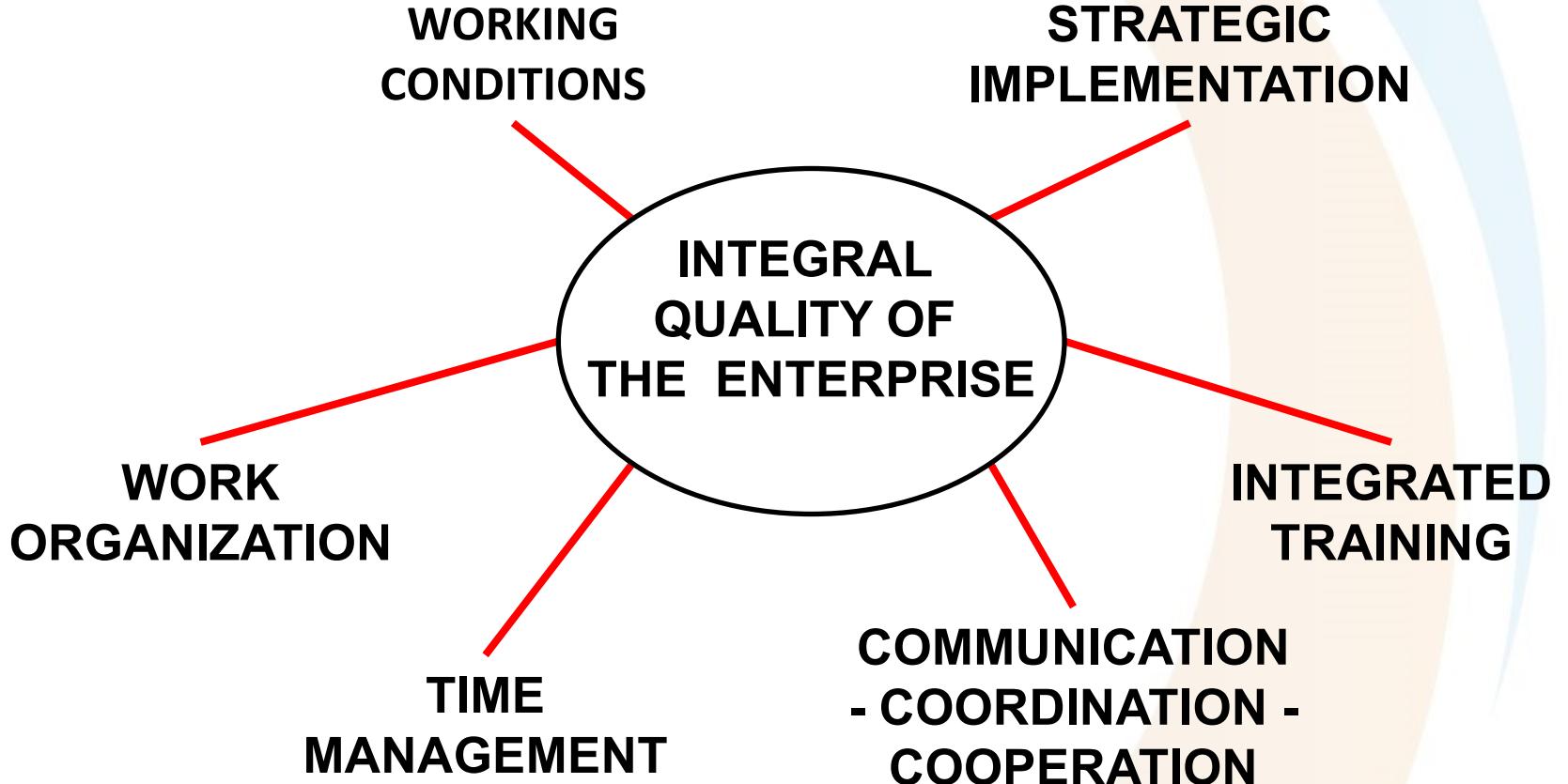


SEAM : an innovative management



*SOCIAL = **HUMANE** AND SOCIAL

Social performance



Economic performance

visible costs

Hidden costs

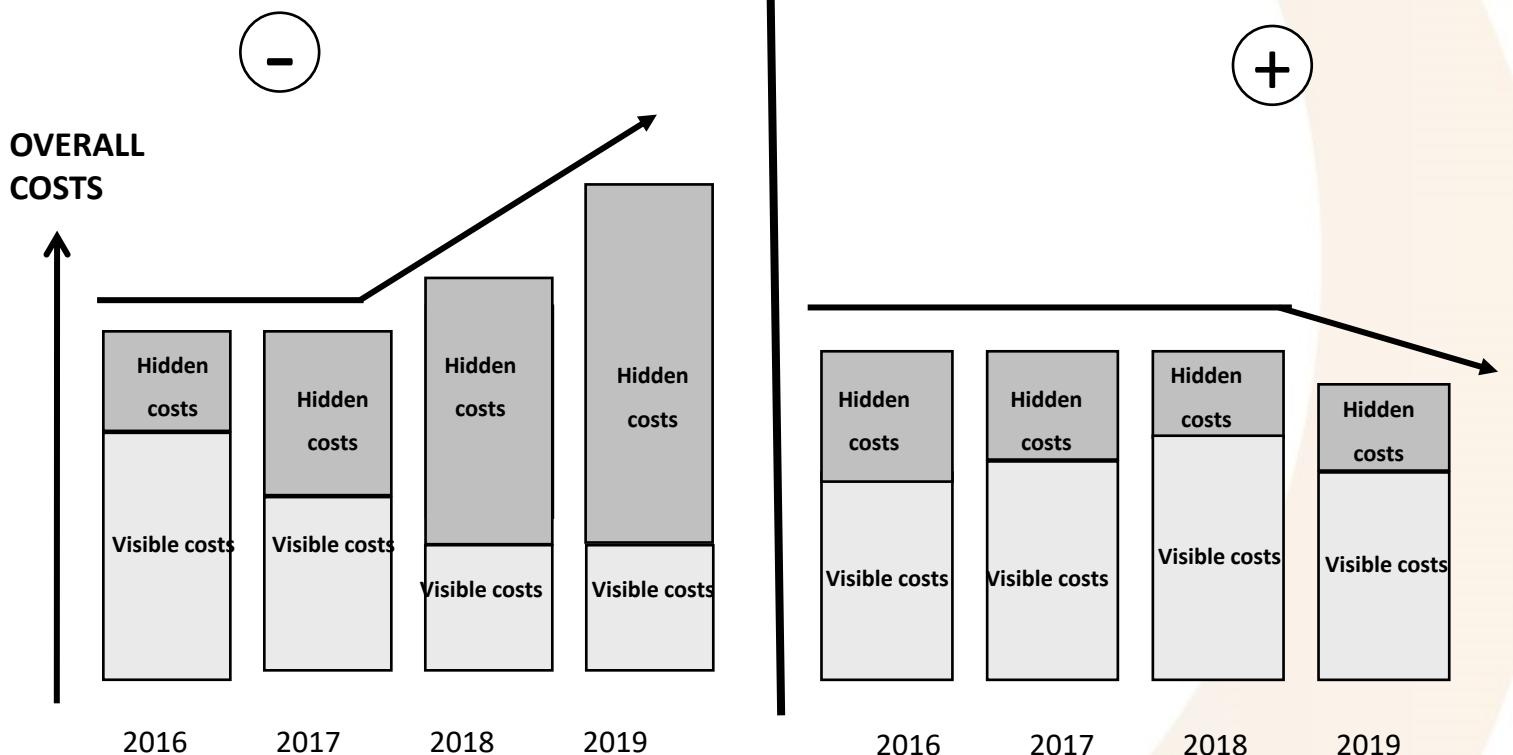
visible performance

Hidden performance

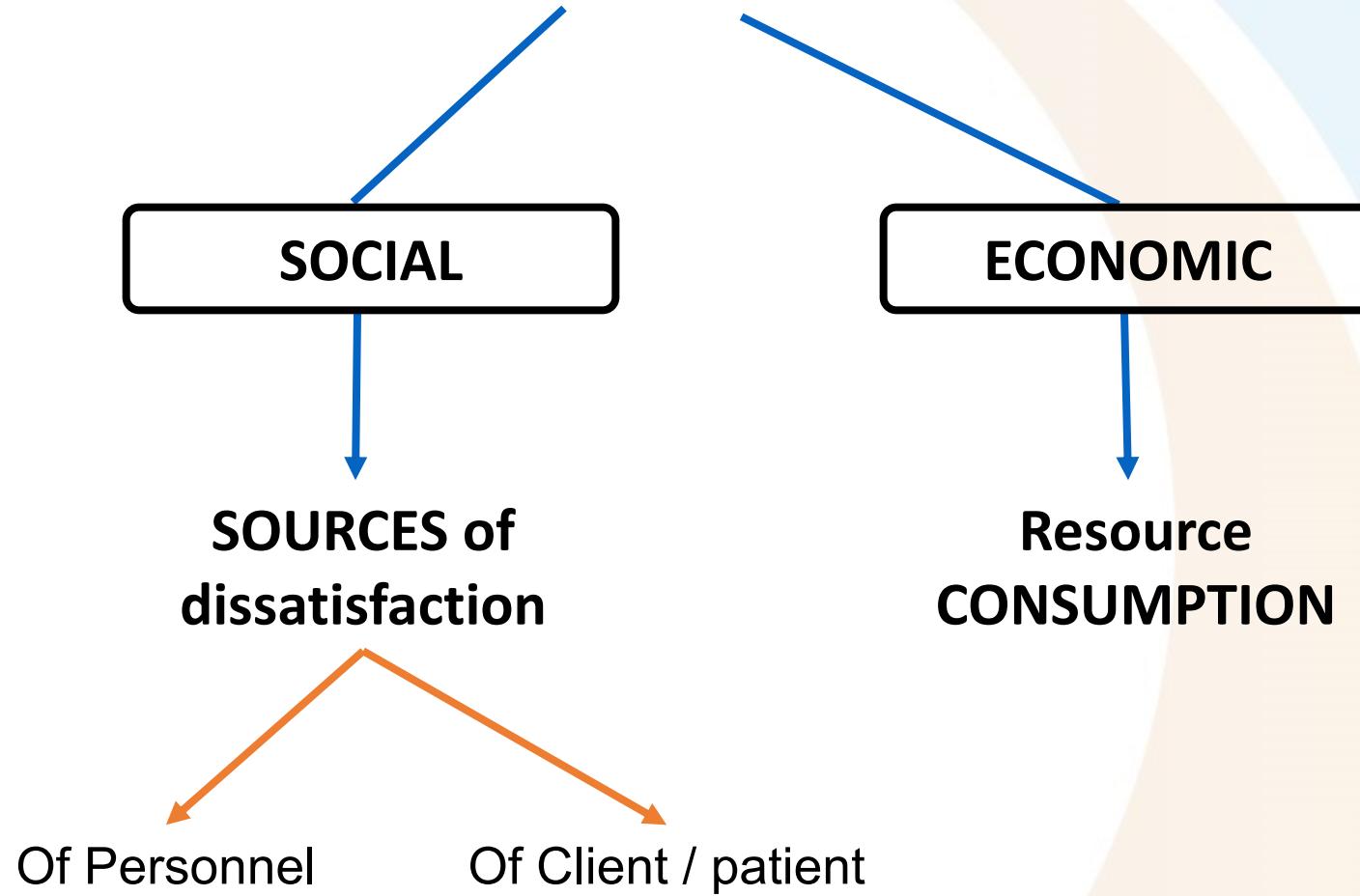
they don't appear in the accounting,
are not measured although they are known

Regular strategic mistakes: NO taking into account hidden costs

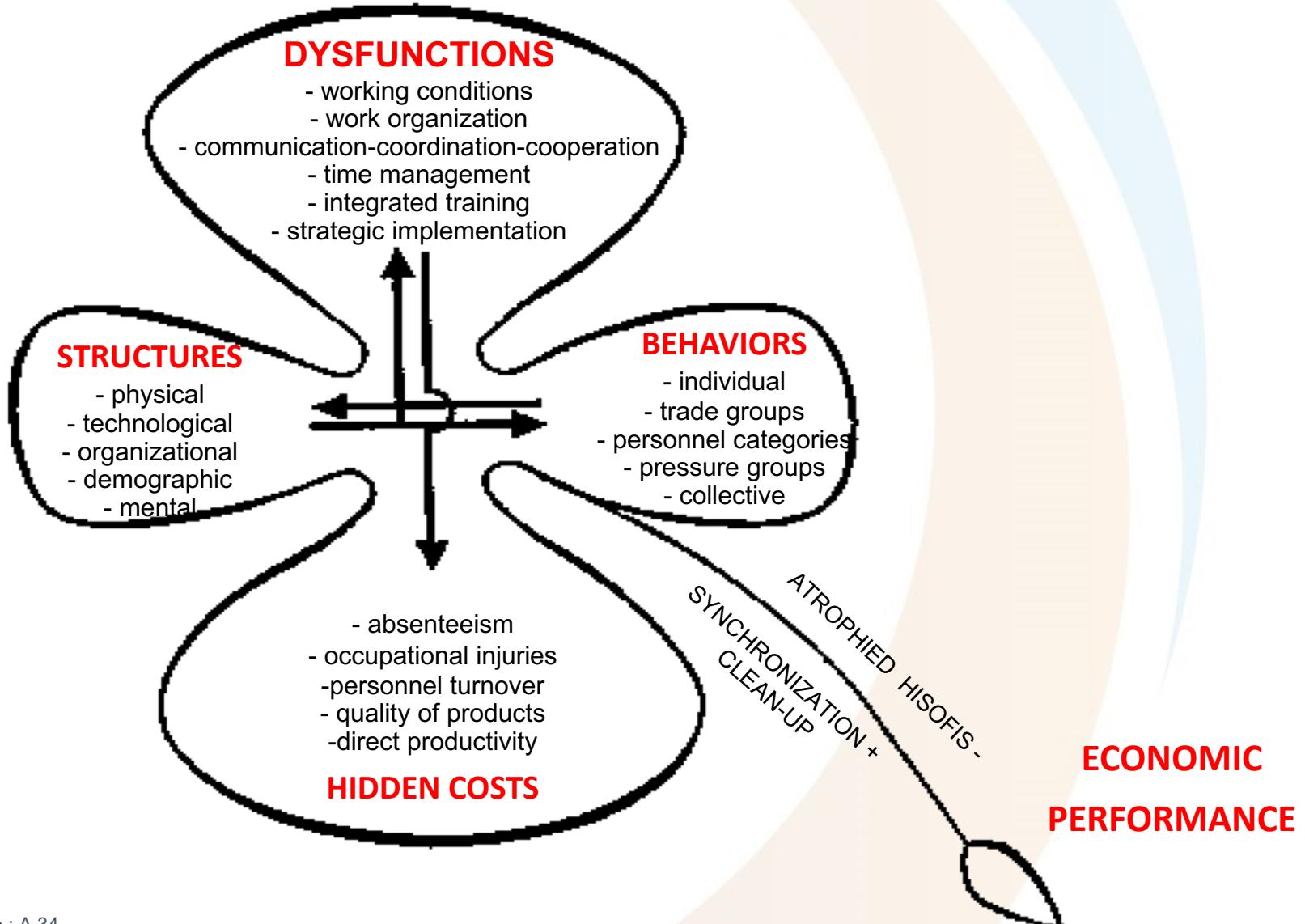
HARMFUL TRADITIONAL STRATEGY TO
CUT DOWN VISIBLE COSTS



Lack of action has a cost



SOCIO-ECONOMIC DIAGNOSIS OF ORGANIZATIONS



Qualitative modelization of dysfunction treatment

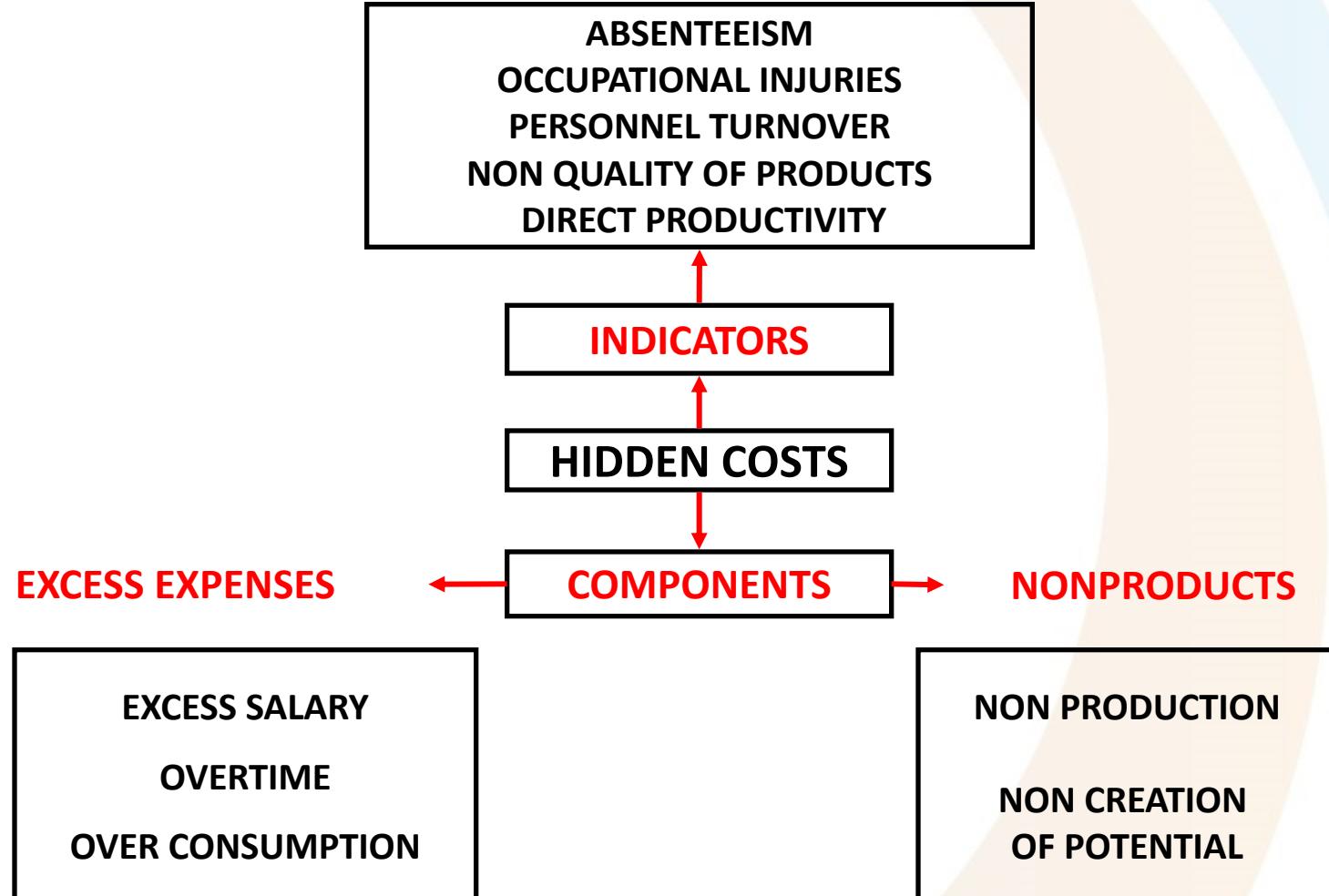
*(expert system software
SEAMES 1987-2004)*

Working conditions	578
Work organization	703
Communication-Coordination-Cooperation	647
Time management	384
Integrated training	254
Strategic implementation	968
<hr/>	
	4,713

Knowledgebase
1, 834 enterprises
42 countries

Number of generic dysfunctions			
1-WORKING CONDITIONS	578	309 – Information transmission	132
101 - Layout and arrangement of the premises	120	310 – Vertical 3C	108
102 - Equipment and supplies	235	311 – Horizontal 3C	93
103 - Nuisance	58	4-TIME MANAGEMENT	384
104 - Physical conditions of work	23	401 - Respecting deadlines	64
105 - Physical workload	6	402 - Planning, scheduling of activities	97
106 - Work hours	52	403 - Poorly-assumed tasks	180
107 - Atmosphere at work	84	404 - Factors disturbing time management	43
2-WORK ORGANIZATION	703	5-INTEGRATED TRAINING	254
201 - Distribution of tasks, missions and functions	246	501 - Adequacy of training-job	52
202 - Regulation of absenteeism	27	502 - Training needs	48
203 - Interest of the work	15	503 - Available competency	45
204 - Autonomy on the job	80	504 - Training frameworks	99
205 - Workload	75	505 - Training and technical change	10
206 - Rules and regulations	187	6-STRATEGIC IMPLEMENTATION	968
207 - Organization chart	73	601 Strategic orientation	105
3-COMMUNICATION-COORDINATION-COOPERATION	647	602 Authors of the strategy	38
301 - 3C internal to the service		603 Breaking down and organizing strategic implementation	
306			205
307 308 Transmission of information			
309 Vertical3C			
310 Horizontal 3C			
302 - Relationship to neighboring services	93	604 Tools for strategic implementation	87
303 - 3C between the network and the home office	41	605 Information systems	83
305 - 3C between the home office and branch offices	13	606 Means for strategic implementation	52
306 - 3C at the board of directors level	24	607 Personnel management	312
307 - 3C between elected authorities and public servants	11	608 Mode of management	86
308 - 3C frameworks	98	TOTAL	3534

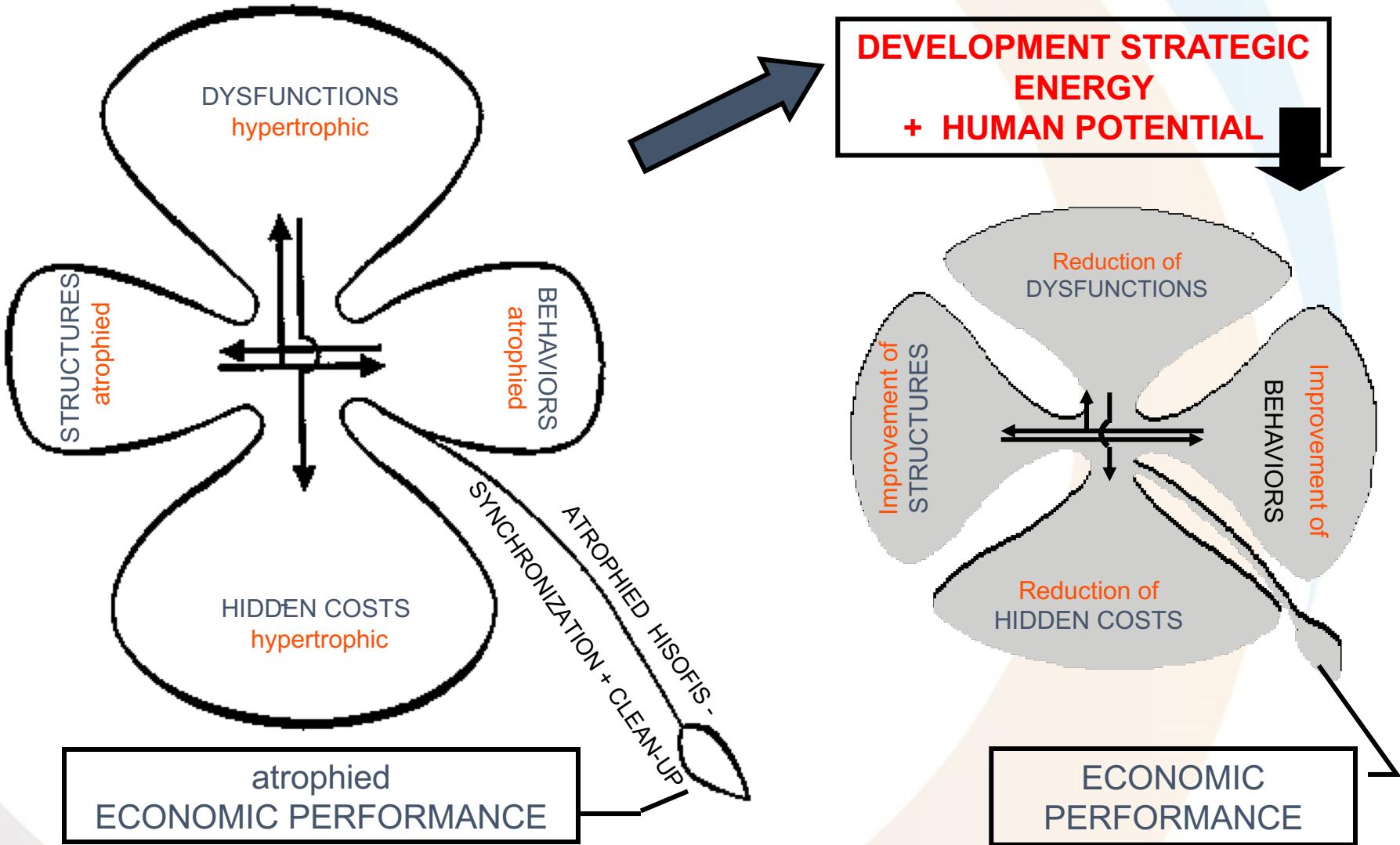
These dysfunctions cause **hidden costs** that affect the organization's performance



Some financial results in hospitals

	Hidden costs/pers/year	Date	Conversion of hidden costs into value added	Date
Hospital 1	21,000 €	2005	39%	2007
Hospital 2	24,000 €	2005	37%	2007

Strategic strengths and weaknesses

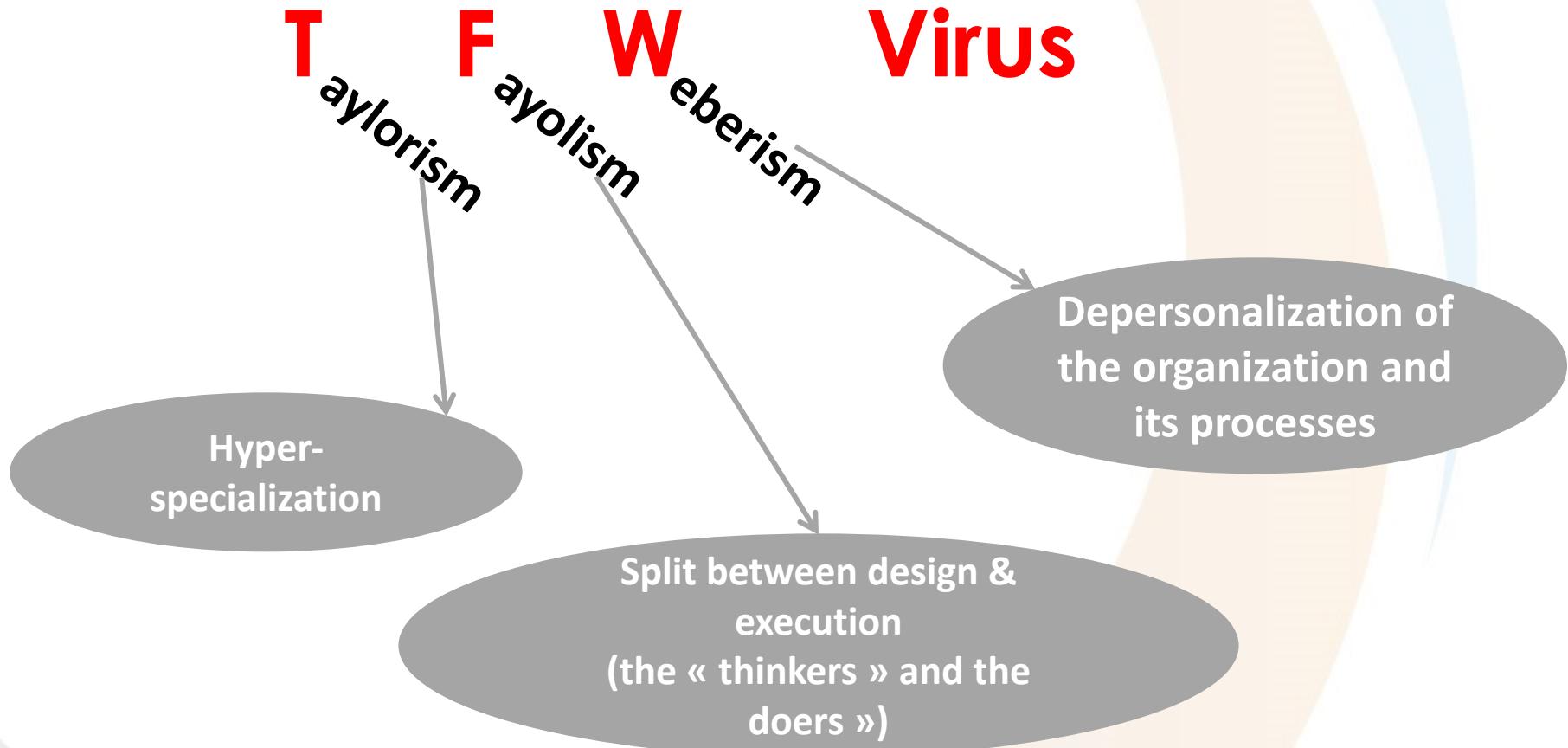


**4 steps in the change process
with everyone's involvement**

- **Participative diagnosis** : dysfunctions and hidden costs : listening, transparency of feedback (mirror-effect)
- **Participative project group led by managers** : designing solutions to reduce dysfunctions
- **Implementation of solutions** : developing everyone's sensitivity to efficiency and effectiveness
- **Rigorous evaluation (assessment) of socio-economic results**

A **hybrid process** : **bottom-up and top-down**
more efficient than only top-down

High Level of Infection in all individuals and organizations

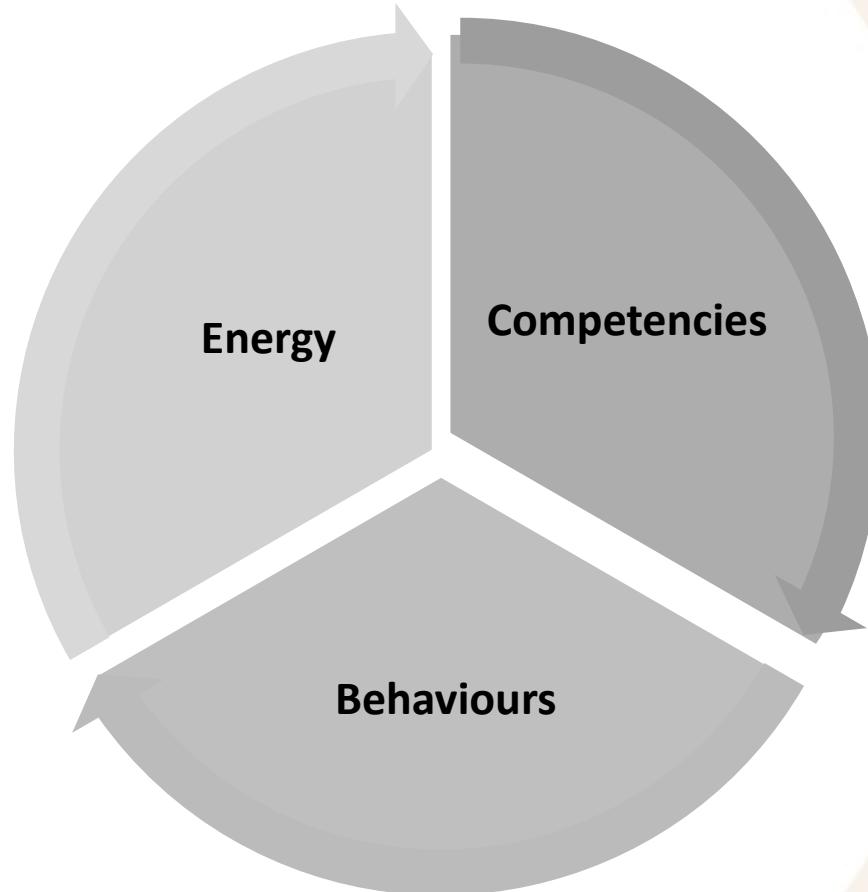


Why investing in Human Potential?

Human Potential

The only active factor for
value-added creation

Components of Human Potential



Improving Quality of Management

In terms of People and Business

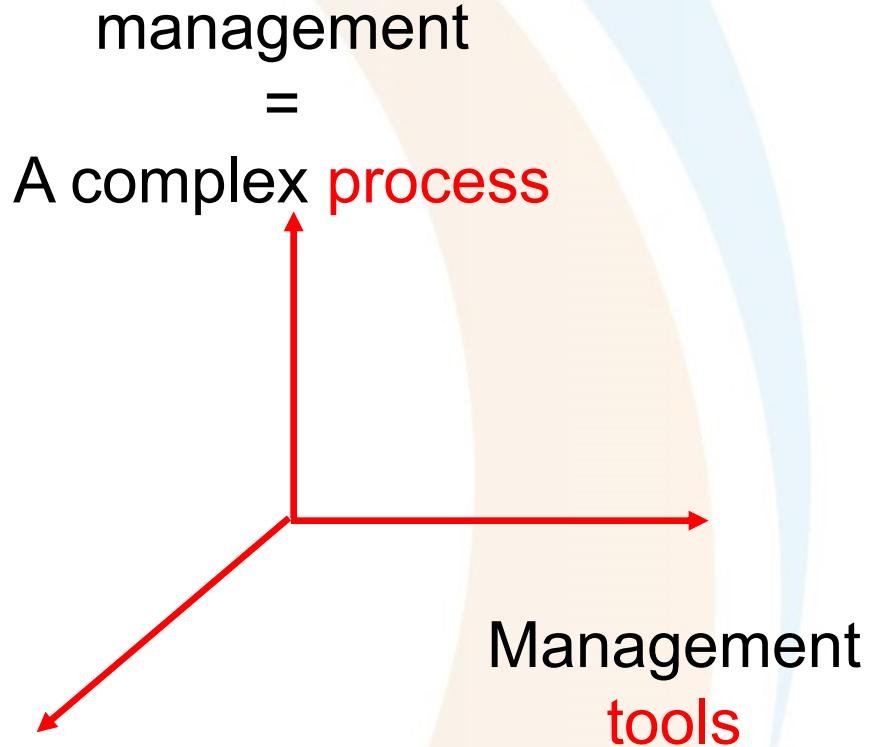
Take care of your collaborators, they will take care of your clients (patients, clinical services...) and your equipment

Investing in people management is EXTREMELY profitable !

The trihedral



Energy = strategic speech + active behaviours



WHAT IS INTERVENTION RESEARCH?

2 OBJECTIVES:

- TO SUPPORT ORGANIZATIONAL TRANSFORMATION
- TO GENERATE SCIENTIFIC KNOWLEDGE

S.E.A.M. IN HOSPITAL PHARMACIES

EXTRACT OF OUR RESEARCH PROGRAM

SOME EXAMPLES OF INTERVENTION-RESEARCH PROGRAMS

A 10 Hospitals program in Paris & Lyon area
managed by Cap O2 under ISEOR oversight

- To improve
 - cooperation within Pharmacy
 - cooperation between Pharmacy and care units
- To help merging several Pharmacy Units in the same territory

STAGES OF A INTERVENTION-RESEARCH

4 STAGES: *some examples*

- **Socio-economic diagnostic:** to identify dysfonctions of drug provisions in care units and measure hidden costs
- To **design** solutions and set **priorities** in an action plan
- To implement the project change management
- To assess performance value through classical and socio-economic indicators (evaluation)

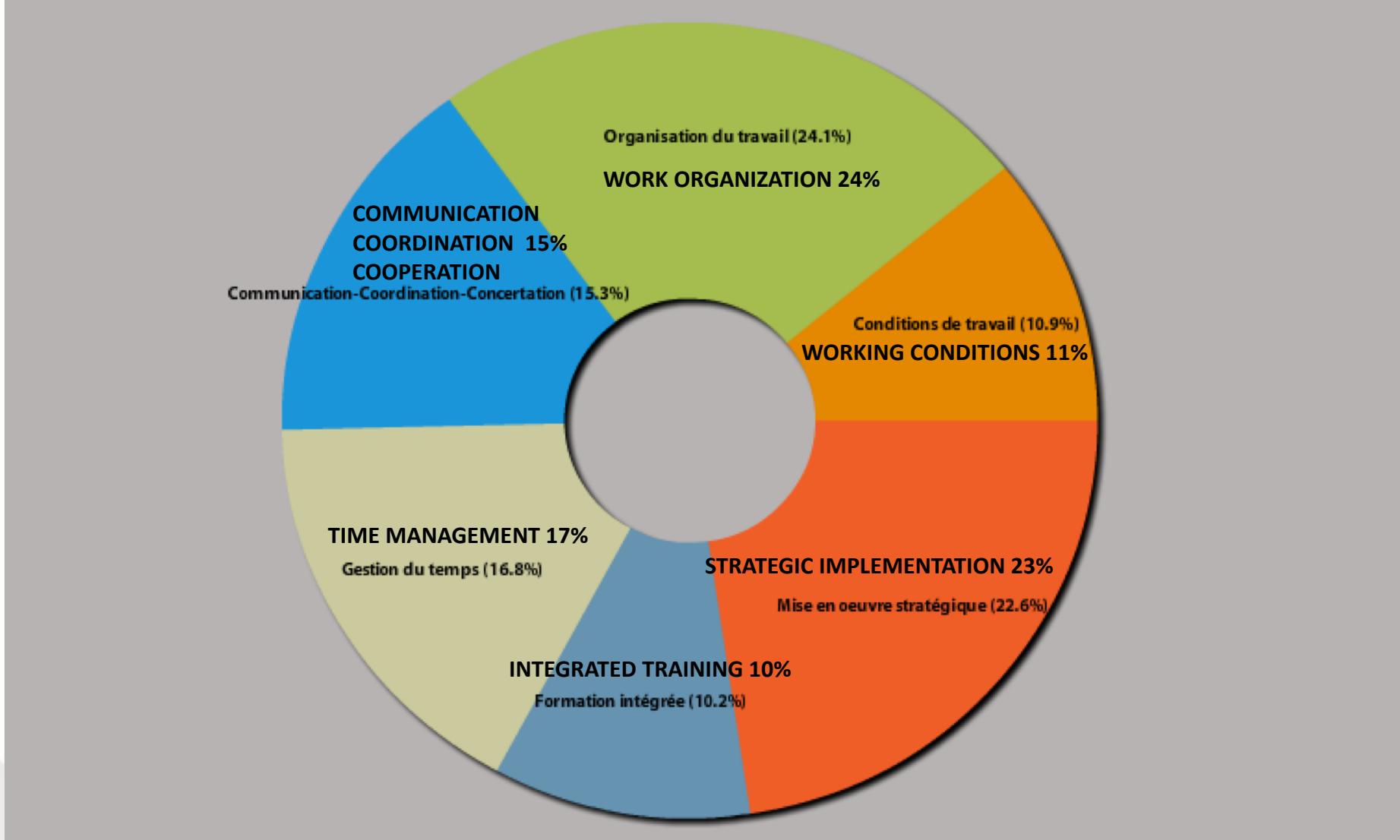
ESTIMATED PLANNING

ANNUAL PLANNING	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
4 STAGES												
SOCIO-ECONOMIC DIAGNOSIS	X	X	X									
PROJECT DESIGN				X	X	X	X					
PROJECT IMPLEMENTATION							X	X	X	X	X	X
EVALUATION / ASSESSMENT							X	X	X	X	X	X

DIAGNOSIS INTERVIEWS: example

- 25 people (pharmacists, pharmaceutical assistants, physicians, nurses)
- 9 individual and group interviews
- 256 quotes expressing dysfunctions
- 39 Key-ideas of dysfunctions

DYSFONCTIONS RANKING . Example



WORKING CONDITIONS

- PROBLEM OF STORAGE PLACE AND MEDICINES CABINETS

« Medecine premises in care units are too small; we get conflict between nurses and pharmaceutical assistants »

- WASTE ON EXPIRED MEDICINES

« The high level of expired medicines is a big concern for pharmacy; we don't have any visibility in the different care units »

- LACK OF PHARMACY ACKNOWLEDGEMENT

« The pharmaceutical assistant role is unknown; he is not a provider or a box ranger »

WORK ORGANIZATION

- PROBLEMS LINKED TO HIGH ABSENTEEISM LEVEL

« Working conditions are altered; after each resignation sick leave grow »

- HEAVY WORKLOAD AND LOSS OF WORK INTEREST

« Since we have lost a nursing position, we have a frenetic rythm; it is difficult to mobilize the healthcare team on new activities »

- LACK OF COMPLIANCE WITH THE COMPUTING PROCEDURES

« Prescriptions in the software are not clear. They don't always match with the right dosage form »

COMMUNICATION-COORDINATION-COOPERATION

- **LACK OF COHESION AND CONFLICTUAL POINTS**

« There is a gap between pharmacists and pharmaceutical assistants; we pretend to be fellows, but in fact it looks like social class struggle »

- **INEFFECTIVE MEETINGS**

« We are used to having only information meetings, without active participation »

- **LACK OF COOPERATION BETWEEN PHARMACY AND CARE UNITS**

« We don't have any sharing on medicine, even during shift change procedure »

TIME MANAGEMENT

- **PLANNING ACTIVITIES IS DIFFICULT**

« Plannings are often changed unexpectedly because of absenteeism and we are not up to date »

- **POORLY ASSUMED ACTIVITIES on drug management**

« Medicines are not stored; they stay in the care units corridors »

- **LACK OF PLANIFICATION**

« Nurses are often going back to the pharmacy to get medicines, to review prescriptions; they lose lots of time on round trips »

INTEGRATED TRAINING

- **TRAINING NEEDS FOR CARE UNITS**

« We don't have any time for medicine training, unless during shift changes »

- **LACK OF NEW PHARMACEUTICAL ASSISTANTS TRAINING**

« New pharmaceutical assistants are not trained »

STRATEGIC IMPLEMENTATION

- **STAFF MANAGEMENT AND WORKFORCE DISTRIBUTION**

« Since the number of working positions remains unchanged, it is difficult to divide pharmaceutical assistant time between the different care units »

- **LACK OF STRATEGY VISIBILITY**

« It is difficult to select medicines to satisfy everybody: physicians, pharmacists, buyers »

« We spend a lot of time on projects; and a lot of them will not be realized »

FINDINGS

NON PRESENCE OF THE PHARMACY IN CARE UNITS LEADS TO:

- DRUG MANAGEMENT PROBLEMS IN CARE UNITS: STORAGE, PRESCRIPTION...
- SLOW COMMUNICATION BETWEEN PHARMACY ET CARE UNITS ABOUT DRUG MANAGEMENT
- LOSS OF NURSES TIME AND PHARMACY MALFUNCTIONING
- POOR INFORMATION SYSTEM LEADING TO POOR MEDICATION CIRCUIT QUALITY
- IMPROVED ACTIVITY AND STAFF DISTRIBUTION BETWEEN PHARMACY AND CARE UNITS

DYSFUNCTIONS TO HIDDEN COSTS

DYSFONCTIONS

INDICATORS OF HIDDEN COSTS

FINANCIAL COMPONENTS

Working conditions → Productivity gaps

→ Overtimes

Premises wrong equiped

Unnecessary staff movements

1,000 hours per year

70,000€

DYSFUNCTIONS TO HIDDEN COSTS

DYSFONCTIONS

Work organisation

INDICATORS OF HIDDEN COSTS

→ Staff turnover

FINANCIAL COMPONENTS

→ Overtime & Excess salaries

Chemotherapy unit
poorely organized
(planification)

17 people turnover
in one year

3,600h
160,000€

DYSFUNCTIONS TO HIDDEN COSTS

DYSFONCTIONS

3C:

Communication-coordination-cooperation

INDICATORS OF HIDDEN COSTS



Non quality



1100h

#40.000€

FINANCIAL COMPONENTS

Unrealized prescriptions
Booming emergency
drug demands

DYSFUNCTIONS TO HIDDEN COSTS

DYSFONCTIONS

INDICATORS OF HIDDEN COSTS

FINANCIAL COMPONENTS

Strategic implementation →

Direct productivity gaps

→

Excess salaries

Shifting responsibilities
from employees to managers

Management spends
a lot of time to catch up
with employees activities

3.600h
130.000€

HIDDEN COSTS: example

• ABSENTEISM	185.000 €
• OCCUPATIONNAL INJURIES AND OCCUPATIONNAL DISEASES	43.000 €
• STAFF TURNOVER	186.000 €
• NON QUALITY	611.000 €
• DIRECT PRODUCTIVITY GAP	586.000 €
• TOTAL HIDDEN COSTS	1.611.000 €
→ 55 people	29.000€ / people per year

Nota Bene : OVERTIME = 820.000 €

CHANGE MANAGEMENT

To appoint pharmaceutical assistants to care units each day

To make care giver's work easier

To train care givers about medicines

To improve cooperation between physicians and pharmacists on protocols and patient's pathway

competency grid

ACTEURS	ACTIVITES	GRILLE DE COMPETENCES: PUI Groupe hospitalier									
		DANS L'ORGANISME EN DEBUT DE PERIODE: MAI 2016									
		OPERATIONS EXISTANTES					DE GESTION SECURE			ENTRETIEN ET MAINTENANCE	
	Assurer les fonctions administratives et de gestion										
	Préparer les documents administratifs à l'attention du patient										
	Réaliser les contrôles en fil de jouée pour la DPHN										
	Assurer le renouvellement des ordonnances										
	Transférer les DPHN dans les services										
	Préparer les pluilles par patient, à partir des ordonnances										
	Faire les contre-visites en fil de jouée pour la DPHN										
	Assurer le renouvellement des ordonnances										
	Reconditionner les médicaments à blisterier à l'aide de la machine										
	Assurer le renouvellement des ordonnances										
	Assurer le renouvellement des ordonnances										
	Assurer les droits de sécurité sociale du patient										
	Assurer les dispersions des ordonnances nominatives										
	Contrôler les diverses autorisations de prescription										
	Reapprovisionnement l'armoire d'omnipraticiel et la vérification des mouvements (balance)										
	Connaitre les médicaments pouvant être délivrés des et les obligations réglementaires										
	Gérer les retours de produits										
	Informez les services des ventes de stock										
	TOUJOURS DES INVENTAIRES FORTIFIANTS POUR TOUTES LES STOCKS										
	Participer aux inventaires de fin d'année										
	Analyser la fiche de fabrication des chimiothérapie										
	Préparer le biss avec nécessité à la préparation										
	Mettre la gaine adéquate pour accès à salle blanche										
	Appliquer les consignes d'hygiène avant l'accès à la salle blanche										
	Effectuer une préparation dans l'isolateur en respectant toutes les étapes										
	Garder les échantillons issus de la fabrication en respectant le circuit adapté										
	Nettoyer l'isolateur en respectant le protocole										
	Commander les produits pharmaceutiques auprès des fournisseurs										
	Surveiller les commandes en attente de livraison et relancer si le fournisseur a fait le retard										
	Contactez les pharmaciens des hôpitaux en cas de réclamation (échec en cours de livraison)										
	Communiquer avec la pharmacie pour toute anomalie de consigne ou de phénomènes imprévus										
	ASSURER DES ENTRETIENS PERIODIQUES										
	Nettoyer l'isolateur en respectant le protocole										
	Commander les produits pharmaceutiques auprès des fournisseurs										
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	Communiquer avec la pharmacie pour toute anomalie de consigne ou de phénomènes imprévus										
	ASSURER DES ENTRETIENS PERIODIQUES										
	Participer aux réunions éducatives dans le secteur rotatif										
	Ranger les produits récupérés en rayon										
	Imprimer le planning des opérations sur l'OPERA										
	Analysier les opérations prévues et faire un rapprochement avec le état du stock										
	Assister à la réunion du bloc opératoire afin d'identifier les lots temporaires et permanents nécessaires										
	Réceptionner les demandes de marchandise par mail ou fax										
	Etablir une demande "mainuelle" (fax) auprès du fournisseur										
	Regulariser auprès du fournisseur (fax) les produits roses et produits non posés (dans le cadre d'un problème)										
	Assurer le retour au fournisseur des produits non utilisés										
	Assurer la tracabilité des DPHN temporaires sur pharmacie										
	Créer les produits dans Pharma (fiche à commander)										
	Assister aux réunions éducatives au niveau des services										
	Participer avec les pharmaciens aux réunions avec les laboratoires sur la mise en place d'essai clinique										
	Rediger la procédure adaptée à chaque essai clinique										
	Réceptionner les produits prévus pour les essais cliniques										
	Dispenser les produits selon la procédure spécifique assurant une tracabilité										
	Valider les dispositions (par téléphone) sur internet										
	Assurer la tracabilité des produits concernant chaque patient										
	Assurer la tracabilité des retours patients										
	Assurer la destruction des contenants des essais cliniques										
	Assurer le lien avec les laboratoires sur les retours										
	Assurer le lien avec les patients										
	Assurer le lien avec les ARCs des laboratoires lors des visites "monitoring"										
	Maintenir en état de fonctionnement les outils de manutention : maintenance première nivale au sur les rouls, batterie à remettre en charge, ...										
	Contacter les ARCs des laboratoires en cas de défaillance										
	Effectuer l'archivage des essais cliniques utilisés conformément aux régles d'hygiène (l'chein)										
	Entretenir les lieux de stockage (hors sol et travaux)										
	Assurer le lien avec les ARCs lors de la culture des essais cliniques										
	Evaluer les surcouverts générés par l'essai clinique et transmettre le service au laboratoire										
	Realiser des évaluations de sécurité cliniques utilisées conformément aux régles d'hygiène (l'chein)										

LEGENDE:

- Pratique courante maîtrisée
- Pratique occasionnelle ou non entièrement
- Connnaissance des principes sans pratique
- A réaliser

CHANGE MANAGEMENT: competency grid

Column 1: actors

Other columns: activities

Legend

- daily use mastery
- occasional use or incomplete mastery
- basic knowledge without practice
- neither theoretical knowledge, no practice
- to be acquired

	CHEMOTHERAPY						
	Analyze the fabrication sheet	Preparing the preparation tray	Put the appropriate clothes for the white room	Apply hygienic instructions	Realize a preparation in the insulator	Manage thewaste procedure	ocole
							
							
							
							
							
							
							
							
							
							
							
							
							

CHANGE MANAGEMENT

PILOTING LOGBOOK

- **CLASSIC INDICATORS**

Minutes of drug provisions in care units

Expired drugs follow-up

Prescriptions level analysis

Level of pharmacist's drug training in care units

- **SOCIO-ECONOMIC INDICATORS**

Pharmacy time invested in care units (training/drug management)

Coordination time between pharmacists and physicians

Coordination time between nurses and physicians (prescriptions...)

SOCIO-ECONOMIC BALANCE: HOW TO SUCCEED WITHOUT ANY ADDITIONNAL STAFF?

COSTS

pharmaceutical time invested
(and skills)

PROFITS

care time reallocated
(healthcare provision...)

pharmaceutical time reallocated
into value activities

Drug waste reduction

EVALUATION QUANTITATIVE FINAL ASSESSMENT

4 pharmaceutical hours invested

=>

+ 11 hours available to care

Pharmaceutical presence into care units has a very high value
So it is a self financed activity*

*Zardet V., Frachette M., Dussossoy E., Leboucher G. (2017), Améliorer la présence pharmaceutique auprès des unités de soins sur la gestion des dotations de médicaments: apports de la recherche-intervention socio-économique, CALASS, septembre 2017, Liège

EVALUATION

QUALITATIVE FINAL NURSES ASSESSMENT

The pharmaceutical presence in the care unit :

- « An essential time flow to the care unit functionning »*
- « Avoid us several round trip every day to the pharmacy »*
- « We save time and we can do care activities »*
- « The pharmacist assistant avoids us to waste time in drug management and to go to the hospital pharmacy 3 or 4 times a day »*
- « Allow us to save time on logistic activities »*
- « Many time saved by the action of the pharmaceutical assistant; we have less overtime since his arrival»*

SELF ASSESSMENT ANSWERS

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TAKE HOME MESSAGES

- 1/ **LISTEN TO PEOPLE** and **EVALUATE HIDDEN COSTS**
- 2/ **TAKE INTO ACCOUNT HIDDEN COSTS:** the decision making focused on only visible costs generates mistakes and decreases efficiency and quality
- 3/ **IMPROVE COOPERATION BETWEEN PHARMACY AND CARE UNITS:**
Organize presence of pharmacie's staff within care units, develop training of nursing staff, and structure communication and dialog between both
- 4/ **HIDDEN COSTS WILL DECREASE AND SATISFACTION WILL BE BETTER IN PHARMACY AND CARE UNITS**

THANK YOU !

BIBLIOGRAPHY

Savall H., Zardet V., *Maitriser les couts et performances cachés*, Economica, 2003

Frachette M., Husson J., Haddad R., Rieutord A. (2012), Les grilles de compétences,
Le Moniteur Hospitalier, n°243, p.9-12, février 2012

Frachette M., Haddad R., Caffin A-G., Rieutord A. (2013), L'effet miroir, *Le Moniteur Hospitalier*, n°252, janvier 2013

Frachette M. (2014), *Le pilotage médico-pharmaceutique: vers une plus grande légitimité de la pharmacie hospitalière par la coopération avec les services cliniques: cas de recherches-interventions en hôpital public*, Thèse soutenue le 1^{er} juillet 2014 à l'Université Jean Moulin, Lyon 3

Frachette M., Zardet V. (2017), Comment le pharmacien peut il prendre l'initiative pour coopérer avec les services cliniques? *Journal de Pharmacie Clinique*, N°2, vol. 36, juillet 2017

Zardet V., Frachette M., Dussossoy E., Leboucher G. (2017), Améliorer la présence pharmaceutique auprès des unités de soins sur la gestion des dotations de médicaments: apports de la recherche-intervention socio-économique, CALASS, septembre 2017, Liège

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