Les fondements historiques de la business analyse

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EPFL & Itecor

Soirée IIBA 9 juin 2022

Trame

- Qui je suis, disclaimer
- BA, c’est quoi ?
- Origine et évolution de comment à pourquoi (analyse, design)
- La recherche (RE)
- Les perspectives

- De comment à pourquoi, innovation au débutV3, pourquoi changer ?
- Modèle d'organisation implicite : decision-making voir SSM
- Systems analysis voir systémique
- V2 goals voir cockroach

Gil ? C’est qui ?

- 1982 – 1988 Diplôme EPFL
- 1988 – 1997 SW Engineer, SW Project Leader, Logitech
- 1998 – 2003 Doctorat EPFL
- 1997 – Present Senior Researcher, EPFL
- 2008 – Present Knowledge Manager, Senior Manager, Itecor

- Research and consulting in Systems Thinking applied to Business Analysis, Requirements Engineering, Enterprise Architecture, Knowledge Management, Change Management

Cet atelier

- Une présentation / discussion basée sur mes expériences, lectures et réflexions.
- J'aurais du l'appeler **Quelques** ~~Les~~ fondements historiques de la business analyse vu le temps imparti et la complexité du sujet
- C'est un atelier, alors n'hésitez pas à commenter ou poser des questions. Il y a des fortes chances que vous sachiez plus que moi sur le sujet.

La business Analyse au début

- BABOK V1.6
  "Business Analysis is the set of tasks, knowledge, and techniques required to identify business needs and determine solutions to business problems. **Solutions often include a systems development component, but may also consist of process improvement or organizational change**.
- Those performing business analysis are today known by a number of titles such as **business analyst, business systems analyst, systems analyst** and others. For simplicity in this guide we refer to those performing business analysis as business analysts.
- Business analysis is distinct from financial analysis, project management, quality assurance, organizational development, testing, training and documentation development."

Source: BABOK V1.6, p. 8

La business analyse et son évolution

- BABOK V2
  “L’analyse d’affaires englobe l’ensemble des tâches et des techniques utilisées pour assurer la liaison entre les parties prenantes d’une organisation, de façon à comprendre la structure, les politiques et le fonctionnement de cette dernière et à recommander ensuite des solutions qui lui permettront d’atteindre ses buts.”

  Source: BABOK V2, p. 11

- BABOK V3
  “Business analysis is the practice of enabling change in an enterprise by defining needs and recommending solutions that deliver value to stakeholders. Business analysis enables an enterprise to articulate needs and the rationale for change, and to design and describe solutions that can deliver value.”

  Source: BABOK V2, p. 2

Les autres titres du business analyste

- Other common job titles for people who perform business analysis include:
  - business architect,
  - business systems analyst,
  - data analyst,
  - enterprise analyst,
  - management consultant,
  - process analyst,
  - product manager,
  - product owner,
  - requirements engineer, and
  - systems analyst.

Tous ces rôles viennent du monde de l'informatique
A l'exception, peut-être de product manager

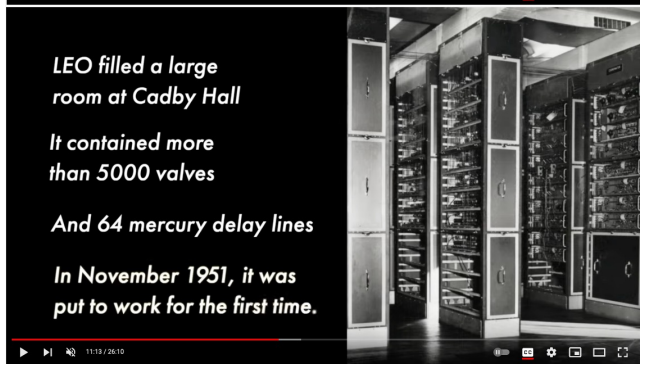
Source: BABOK V3, p. 3

De comment à pourquoi

- Au début d’une invention on est juste émerveillé par la création de la chose. On est juste content que ça marche.
- Avec l’évolution de l’invention, on va de plus en plus vers la sophistication
- La BA a suivi le même chemin

Question

- Quel était le premier ordinateur business ? Fabricant ? Année de mise en service ?
- LEO : The Lyons Electronic Office
- J. Lyons and Co
- 1951
- https://en.wikipedia.org/wiki/LEO_(computer)



- https://youtu.be/Rzu68nRVwtE
- LEO: The Story of the World's First Business Computer - Computing History UK
- 9'35" – 12'10": Presentation de LEO, son architecture, payroll, le temps pris pas une gérante de magasin
- 18' – 20' teste d'aptitude, faire du thé, flowchart

Mother of all Demos

- De quand date l'informatique interactive à distance ?

- https://youtu.be/yJDv-zdhzMY

Pourquoi la BA ?

- “Well, w … tell me what you wan
- “I don’t … . Nothing you’ve s
- [..] “You’ … t to show me some stuff, and I’ll know it when I see it.”
- “Oh, gre … people: I’ll know it

Même Steve Jobs ne savait pas toujours ce qu’il voulait

Les être humains ne savent pas ce qu’ils veulent

- Source : Isaacson, Walter. Steve Jobs (p. 499). Simon & Schuster. Kindle Edition.

Business ? Analyse ?

L’analyse : Quand est-ce que ceci a été écrit ?

- “In the past decades the potential power of information systems over our lives has grown. Our understanding of analysis and design has also grown—but not as fast. In short, we are losing the race. Perhaps I shouldn't worry about it, but there are many rumblings on the political horizon. I'm afraid the public isn't going to put up with us much longer.
- Systems analysis is a new wine in an old bottle. In the early days, a few decades ago, the analyst's job was converting existing systems to new technologies. For such tasks, the title of "analyst" was reasonably appropriate, but now the situation has changed. Today's analyst still converts and refines existing systems, but increasingly the job is to apply technology to do new things—things the previous systems never dreamed of.
- As the job changes, the analyst's burden grows. When we aren't replacing an existing system, design no longer follows directly from analysis. Two separate jobs become inseparable, for analysis of what exists yields insufficient information to design what will come to exist.
- Today there is a new job, but the old names persist. I would prefer to replace the misleading appellation of "systems analyst/ designer," but we love our old bottles, even as we delight in our new wines. A new name might force us to rethink systems analysis. Without it, we'll have to think without being forced.
- We need new thoughts on what the analyst does—observing, modeling, designing, thinking—and how the analyst becomes a better analyst—education, professional behavior, and personal development.”

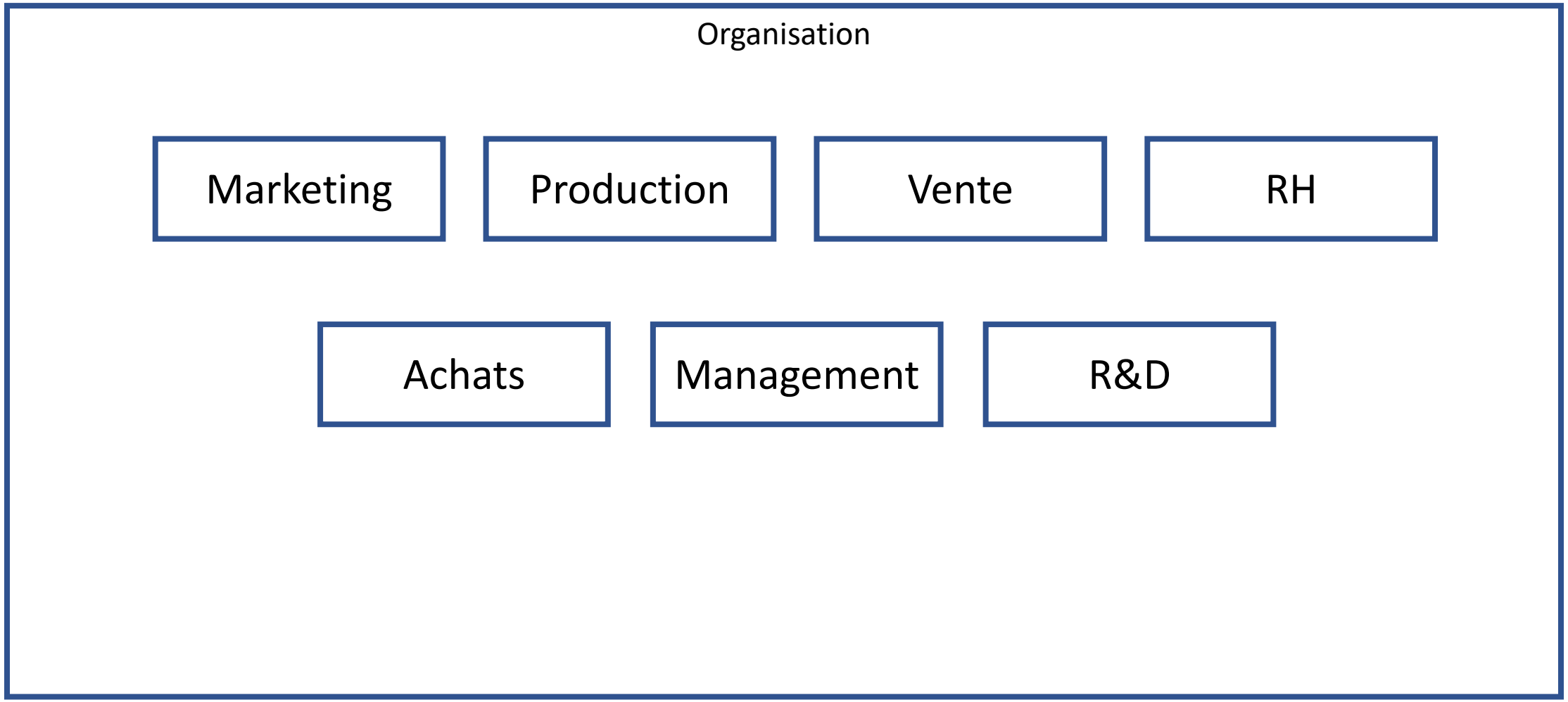
Source : Weinberg, Gerald. Rethinking Systems Analysis and Design (General Systems Thinking Book 4) . Weinberg & Weinberg. Kindle Edition.

Première publication 1982

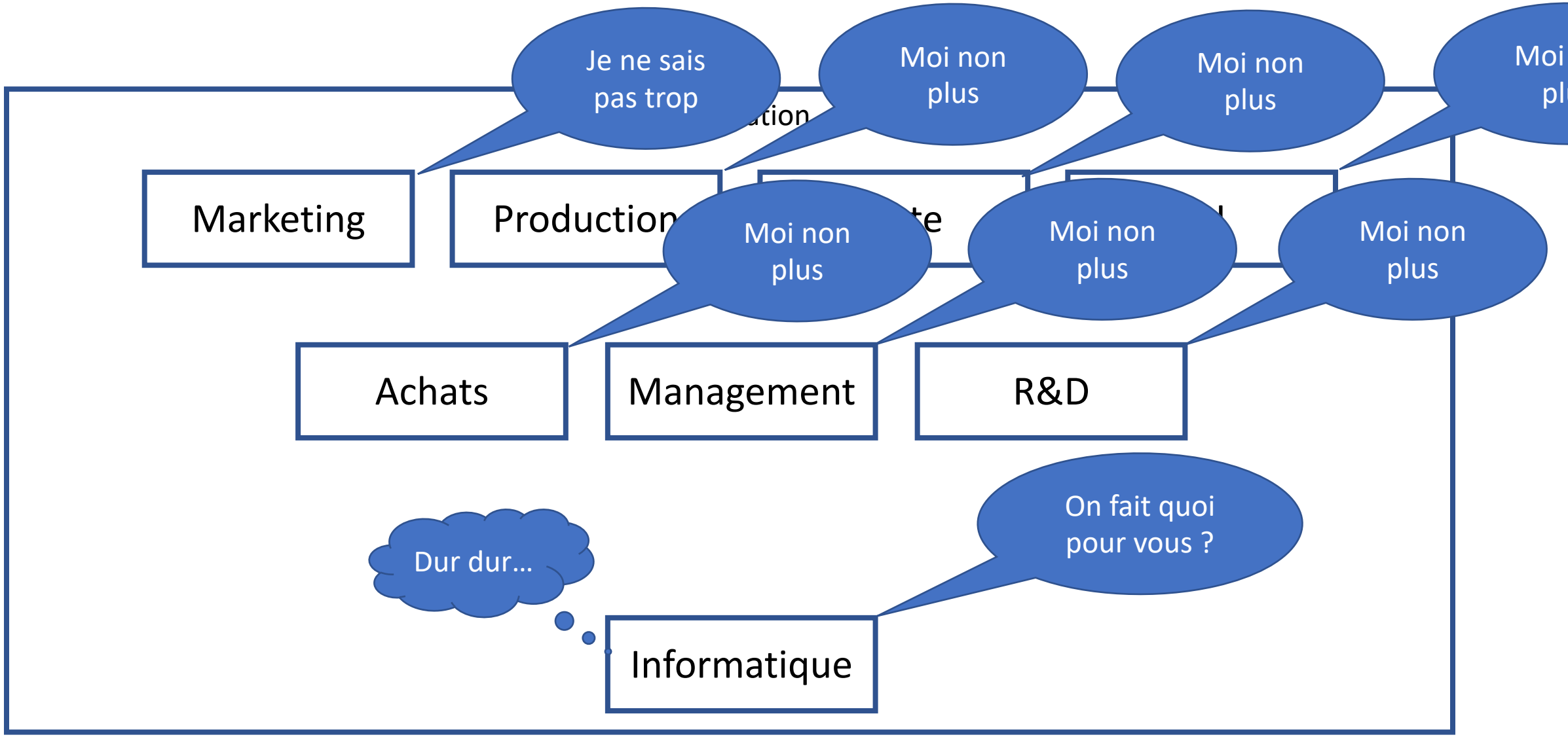
C'est quoi “business”?

- Etre occupé ? Etre anxieux
- Affaires - à faire

Business: Commençons avec une organisation

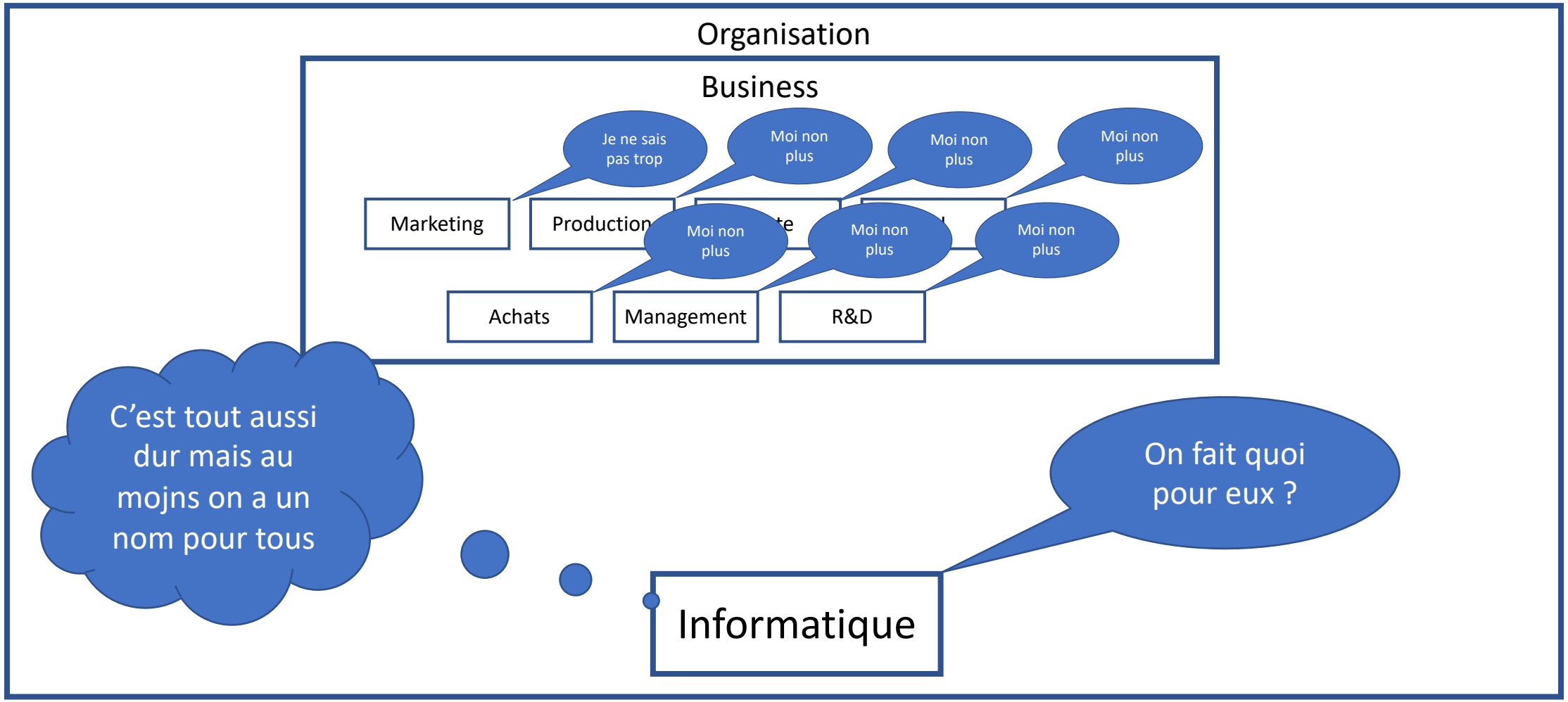


Une organisation avec informatique

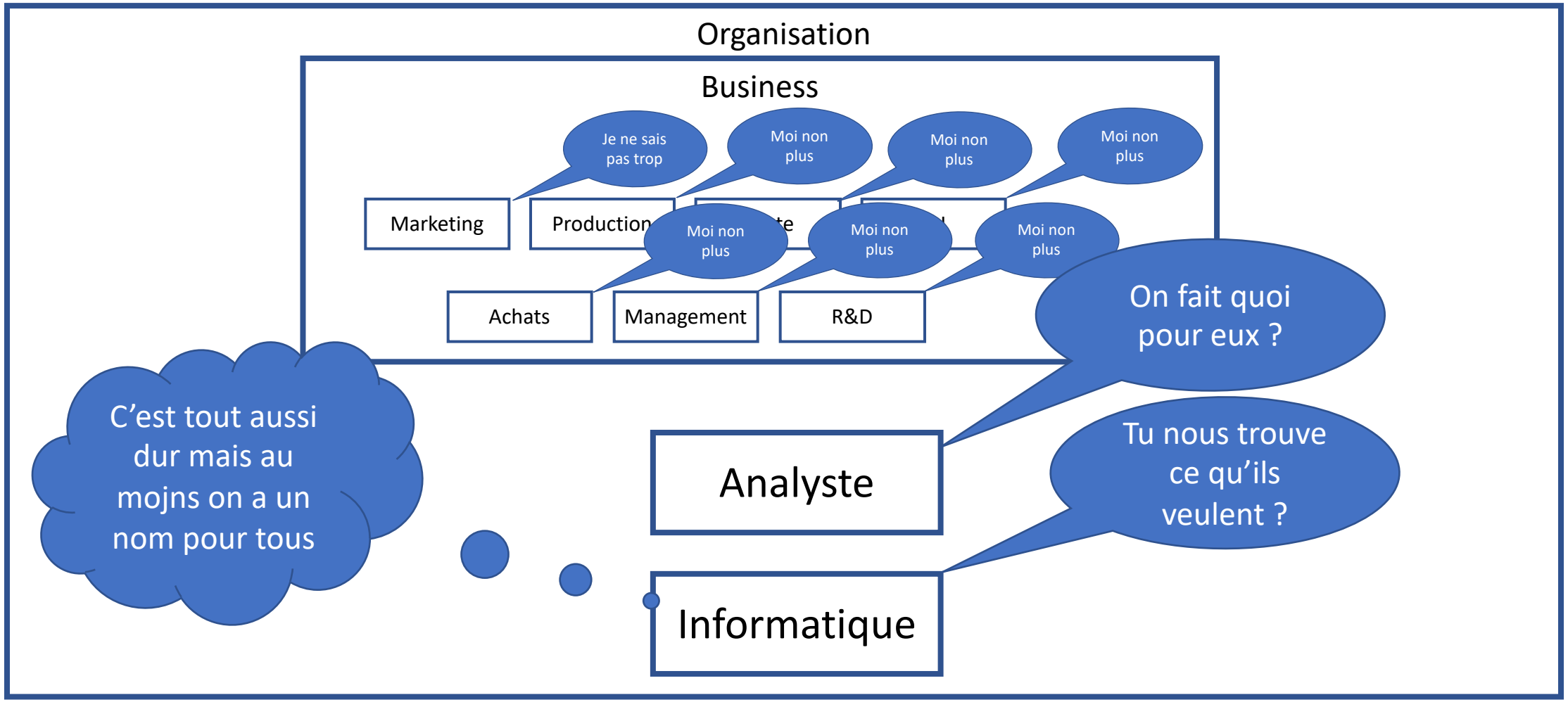


Naissance du “business”

Le business est la création de l'informatique
L’informatique a besoin de comprendre le business pour l'aider à se transformer (avec l’informatique)



Naissance du “business”



Et là l’analyse a heurté un mur, le mur du tacite

- Tout comme l’IA
- La connaissance tacite nous empêche d’exprimer ce qu’on sait
- Le business analyste ne peut pas simplement demander aux parties prenantes ce qu’elles veulent.

Connaissance tacite

- “As Vickers observes:
- It seems to me obvious that policy making at all levels from the personal to the planetary involves processes which are not merely logical, though they are equally neither random nor arbitrary.
- And it seems equally obvious that these processes cannot be explicitly and fully described, though they can be recognized, respected, and even influenced.
- Reluctance to accept these conclusions is, in my view, part of the unhappy legacy which technology has brought to the regulation of human affairs, a legacy derived from the fact that until the recent past its concern has lain with solving problems, where both the problem and the criteria for comparing possible solutions were already given or set by someone else.”

- Source : Weinberg, Gerald. Rethinking Systems Analysis and Design (General Systems Thinking Book 4) . Weinberg & Weinberg. Kindle Edition.

L’évolution des termes

Programme Software Hardware System Business

Analyse et Design orienté objet (OOA/OOD)

Structured Analysis and Design

Programmation Développement Analyse Analyse et Design Business Analyse

1950 1960 1970 1980 1990 2000 2010 2020

Programmeur Analyste Programmeur Analyste Analyste Designer Business Analyste

Les autres BOK

- PMBOK (A Guide to the Project Management Body of Knowledge, V7)
- SWEBOK (Guide to the Software Engineering Body of Knowledge, V3)
- SEBoK (Guide to the Systems Engineering Body of Knowledge, V2.5)
- BABOK (A Guide to the Business Analysis Body of Knowledge, V3)

SWEBOK® Guide V3.0, p. xxxii

Table I.1. The 15 SWEBOK KAs
Software Requirements
Software Design
Software Construction
Software Testing
Software Maintenance
Software Configuration Management
Software Engineering Management
Software Engineering Process
Software Engineering Models and Methods
Software Quality
Software Engineering Professional Practice
Software Engineering Economics
Computing Foundations
Mathematical Foundations
Engineering Foundations

BA vs RE

- Business Analysis (BA)
  "the practice of enabling change in an enterprise by defining needs and recommending solutions that deliver value to stakeholders."
  [A Guide to The Business Analysis Body of Knowledge® V3]
- Requirements Engineering (RE)
  "The systematic and disciplined approach to the specification and management of requirements with the goal of understanding the stakeholders' desires and needs and minimizing the risk of delivering a system that does not meet these desires and needs."
  [A Glossary of Requirements Engineering Terminology 2.0.0]

Les techniques et perspectives du BABOK

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Alger and Goldstein SBM

- Goldstein, N., & Alger, J. (1992). Developing Object-Oriented Software for the Macintosh - Analysis, Design, and Programming. Reading, MA, U.S.A.: Addison-Wesley.

Techniques

- Structured Analysis
- Structured Design
- SADT, SASDM…
- OOP/OOA/OOD
- Merise
- Use cases, essential use cases, goal-driven use cases
- BPMN
- RUP
- UML, OML
- RAD

MERISE (1970-80)

- Dans Merise deuxième génération, la définition générale du système comprend les étapes suivantes :
- Objectifs de la définition générale du système ;
- Les phases de la définition générale du système ;
- Phase d'appréciation du projet ;
- Positionnement du projet ;
- Délimitation des fonctions à informatiser ;
- Évaluation des enjeux ;
- Phase de spécifications générales ;
- Modélisation conceptuelle des données ;
- Macro-modélisation organisationnelle des traitements ;
- Rédaction du dossier de spécifications générales.

Source : https://fr.wikipedia.org/wiki/Merise_(informatique)

1990: A Pivot Year

- Michael Hammer
  Reengineering Work: Don’t Automate, Obliterate
  Harvard Business Review: July - August 1990

Harvard Business Review

CHANGE MANAGEMENT

Reengineering Work: Don’t Automate, Obliterate

by Michael Hammer

FROM THE JULY–AUGUST 1990 ISSUE

Despite a decade or more of restructuring and downsizing, many U.S. companies are still unprepared to operate in the 1990s. In a time of rapidly changing technologies and ever-shorter product life cycles, product development often proceeds at a glacial pace. In an age of the customer, order fulfillment has high error rates and customer inquiries go unanswered for weeks. In a period when asset utilization is critical, inventory levels exceed many months of demand.

- Thomas H. Davenport and James E. Short
  The New Industrial Engineering: Information Technology and Business Process Redesign
  MIT Sloan Management Review: July 15, 1990

MITSloan Management Review

The New Industrial Engineering: Information Technology and Business Process Redesign

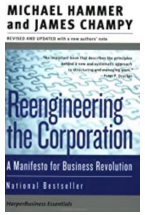
Magazine: Summer 1990 • July 15, 1990 • Reading Time: 44 min

Thomas H. Davenport and James E. Short

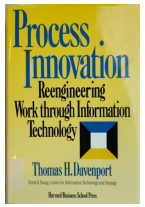
Those aspiring to improve the way work is done must begin to apply the capabilities of information technology to redesign business processes. Business process design and information technology are natural partners, yet industrial engineers have never fully exploited their relationship. The authors argue, in fact, that it has barely been exploited at all. But the organizations that have used IT to redesign boundary-crossing, customer-driven processes have benefited enormously. This article explains why.

1993: Another Pivot Year

- Michael Hammer and James A. Champy
  Reengineering the Corporation:
  A Manifesto for Business Revolution



- Thomas H. Davenport
  Process Innovation:
  Reengineering work through
  information technology



Hammer’s Words Still Resonate Today

- “In an age of the customer, **order fulfillment** has high error rates and customer inquiries go unanswered for weeks.”
- “heavy investments in **information technology** have delivered disappointing results—largely because companies tend to use technology to mechanize old ways of doing business. They leave the existing processes intact and use computers simply to speed them up.”
- “the watchwords of the new decade are innovation and **speed, service and quality**.”
- “Instead of embedding outdated processes in **silicon and software**, **we should obliterate them and start over**. We should “reengineer” our businesses: use the power of modern information technology to radically redesign our business processes in order to achieve dramatic improvements in their performance.”
- “Reengineering strives to break away from the old rules about how we organize and conduct business. It involves recognizing and rejecting some of them and then **finding imaginative new ways to accomplish work**. From our redesigned processes, new rules will emerge that fit the times. Only then can we hope to **achieve quantum leaps in performance**.”

Harvard Business Review

CHANGE MANAGEMENT

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by Michael Hammer

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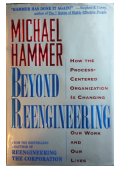
[Hammer M., Reengineering Work: Don’t Automate, Obliterate Harvard Business Review: July - August 1990]

In 1996 He Admitted Going Overboard

- “So far, so good. But to paraphrase an infamous statement from the Vietnam era, **process-centered improvement techniques saved companies by destroying them**.
- By bringing processes to the fore, the very foundations of the traditional organization were undermined. A disregard for processes had been built into the structure and culture of industrial era corporations. The premise on which modern organizations were founded, **Adam Smith’s idea of the specialization of labor**, was in fact a rejection of process. It argued that success was based on fragmenting processes into simple tasks and then resolutely focusing on these tasks. By attending to processes instead, the new improvement efforts created stresses that could not be papered over.”

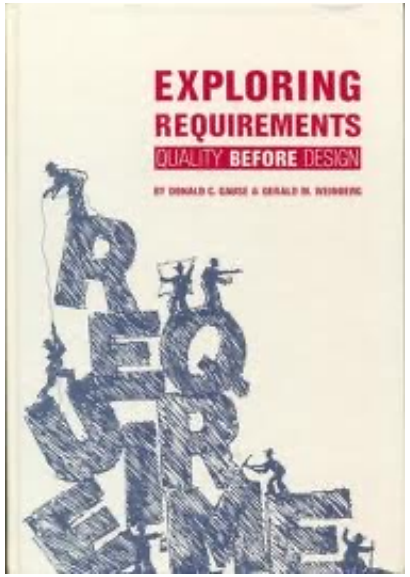
[Hammer, Michael. Beyond Reengineering (p. 7). HarperCollins, 1996]

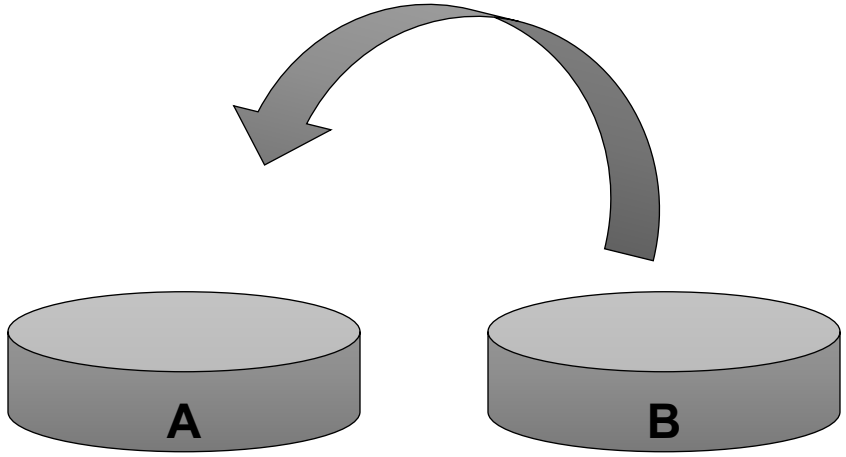


The Guaranteed RE Process

“requirements process-the part of development in which people attempt to discover what is desired” [Gause and Weinberg 1989]

“Whether it's roaches or requirements, the hard part is catching them and getting them to stand still” [Gause and Weinberg 1989]





Guaranteed Cockroach Killer Instructions:

1. Place cockroach on block A.
2. Hit cockroach with block B.

The result is guaranteed if, and only if, can find the cockroach, catch it, place it on block A and persuade it not to move while you hit it with block B

Guaranteed RE Process

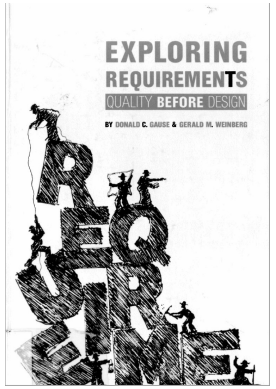
Instructions:

1. Capture the goals
2. Construct goal model
3. Infer requirements
4. Design the system
5. Implement system
6. Use system

The result is guaranteed if, and only if, you can identify the stakeholders, identify their goals, validate they are correct and make sure the stakeholders don’t change their minds while you develop the system

- “requirements process-the part of development in which people attempt to discover what is desired” [Gause and Weinberg 1989]

- “Whether it's roaches or requirements, the hard part is catching them and getting them to stand still” [Gause and Weinberg 1989]



Four Dark Corners of Requirements Engineering

PAMELA ZAVE
AT&T Research
and
MICHAEL JACKSON
AT&T Research and MAJ Consulting Limited

(1) All the terminology used in requirements engineering should be **grounded in the reality of the environment** for which a machine is to be built.
(2) It is not necessary or desirable to describe (however abstractly) the machine to be built. Rather, the environment is described in two ways: **as it would be without or in spite of the machine and as we hope it will become because of the machine**.

As-is → To-be

Requirements engineering is about the satisfaction of goals [Dardenne et al. 1993]. But **goals by themselves do not make a good starting point for requirements engineering**.
To see why, consider a project to develop a computer-controlled turnstile guarding the entrance to a zoo [Jackson and Zave 1995].
If the engineers are told that the goal of the system is to deny entrance to people who have not paid the admission charge, they may decide that the goal has been stated too narrowly. Is not the real goal to ensure the profitability of the zoo? Should they consider other ways of improving profits, such as cutting costs? What if there is more money to be made by closing the zoo and selling the land? And what is the goal of profit? If the goal of profit is the happiness of the zoo owner, would religion or devotion to family be more effective? Obviously there is something wrong here.
Almost every goal is a subgoal with some higher purpose.
Both engineering and religion are concerned with goal satisfaction; what distinguishes them is their subject matter.

Agile Manifesto 2001

Requirements Engineering, a Specialization of Systmes Engineering

- From the 12th IEEE International Requirements Engineering Conference, RE’04 Kyoto Japan
- Requirements Engineering (RE) is the branch of systems engineering concerned with the goals, desired properties and constraints of complex systems, ranging from embedded software systems and software-based products to large enterprise and socio-technical systems that involve software systems, organisations and people. It covers all activities related to the acquisition, specification and maintenance of requirements throughout the life cycle. It also covers how requirements relate to business processes, work redesign, system and software architecture, and testing.
- The importance of requirements engineering has been recognised for many years. In the 1990s this recognition led to an IEEE Conference and Symposium series. Ten years on, the RE Conference has become the international platform for presenting new research, transferring research results to industrial practice, and presenting industrial experiences and best-practice to the widest possible audience

Analyse ?

- “anal·y·sis | \ ə-ˈna-lə-səs \
- plural analyses\ ə-ˈna-lə-ˌsēz \
- **Definition of *analysis***
- 1a **:** a detailed examination of anything complex in order to understand its nature or to determine its essential features **:** a thorough study doing a careful analysis of the problem
- [..]
- 2 **:** separation of a whole into its component parts” https://www.merriam-webster.com/dictionary/analysis

Comment est-ce que l’analyse peut aboutir à une solution ?

Résumé

- Le BABOK ne donne pas une vision historique ou philosophique du domaine
- Pour avoir une vision plus large, ça vaut la peine d'étudier l'analyse et la synthèse et donc la systémique
- Exemple
- Weinberg G.M, Rethinking Systems Analysis and Design
- Weinberg and Gause, Requirements
- Weinberg and Gause, Are Your Lights On
- Zave and Jackson
- Polanyi
- Checkland
- SWEBOK
- CPRE