SCORECARDS & DASHBOARDS

Unit 3 – Data exploitation. Query languages and visualization

S3-3 – SCORECARDS & DASHBOARDS

V S

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KEY CONCEPTS:

- **Vision**: provides everyone in the organization a shared mental Framework that helps give form to <u>the abstract future</u>.
- **Strategy**: the board of <u>priorities adopted</u> to pursuit a mission according to the operating environment.
- **Objective**: a concise statement describing the <u>specific things</u> organization must do well in order to execute a strategy.
- **Target:** the <u>desired result</u> of a performance <u>measure</u>.

OUTLINE:
1. Balanced Scorecards (BSC)
2. Strategy Maps
3. Example: BSC in Healthcare
4. Dashboards Essentials
5. Scorecards vs. Dashboards
6. Examples of Dashboards: IT company and ICU.
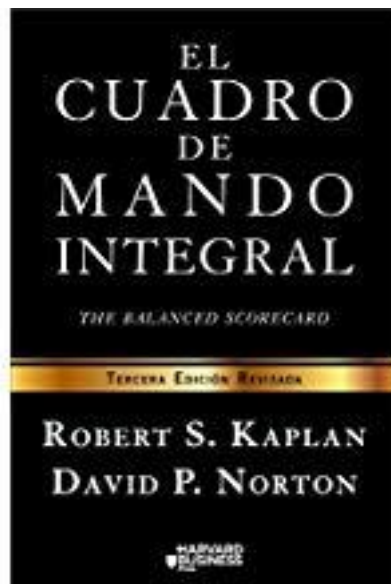
1. BALANCED SCORECARDS (BSC)

- BALANCED SCORECARDS (BSC)

  - TOP-DOWN methodology in organizations.
  - **Tool to manage long-term strategy**.
  - It is NOT: tool to design a strategy.

- BALANCED SCORECARDS (BSC)

"A carefully selected set of quantifiable measures derived from an organization's strategy".

By Robert Kaplan (Harvard Univ.) & David Norton (consultant Boston area)

BOOK: The Balanced Scorecard (in 1996)

- BALANCED SCORECARDS (BSC)

- Scorecard can be used as:
  - measurement system.
  - strategic management system.
  - communication tool.

HOW TO DESIGN A BALANCED SCORECARD:

Know **guiding principles**: objectives & strategy.

Split the strategy objectives into **actions**.

Strategy Objective Actions from **4 perspectives**:

Financial

Customer

Internal-Business-Processes

Learning & Growth.

HOW TO DESIGN A BALANCED SCORECARD:

- Strategy **Scores**: measure the actions for each strategy. "*If you cannot measure something, you cannot manage it*".

- Target: the score value that we expect to reach.

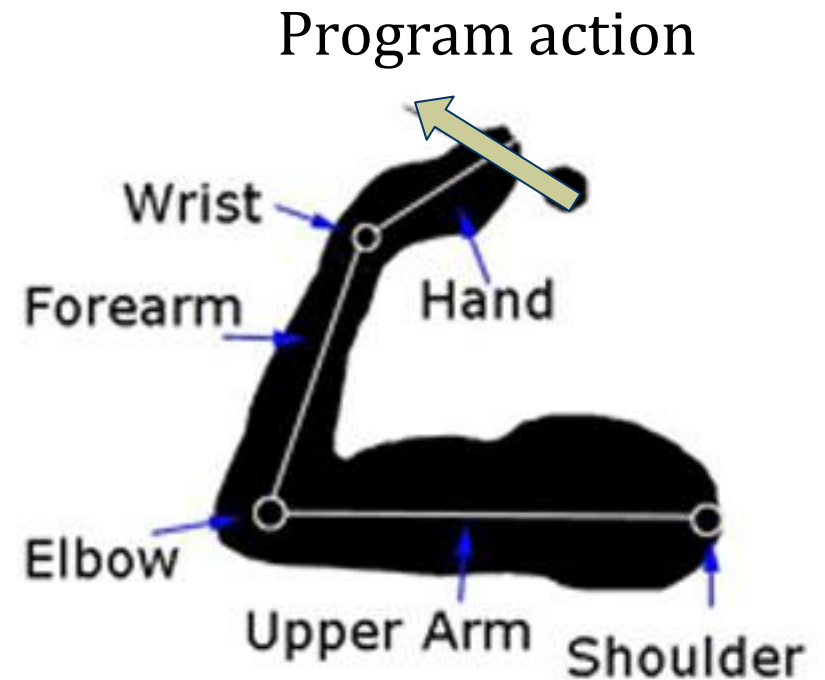- Program actions: specific short-term actions that must be done **to reach a target**. Tactics.

HOW TO DESIGN A BALANCED SCORECARD:
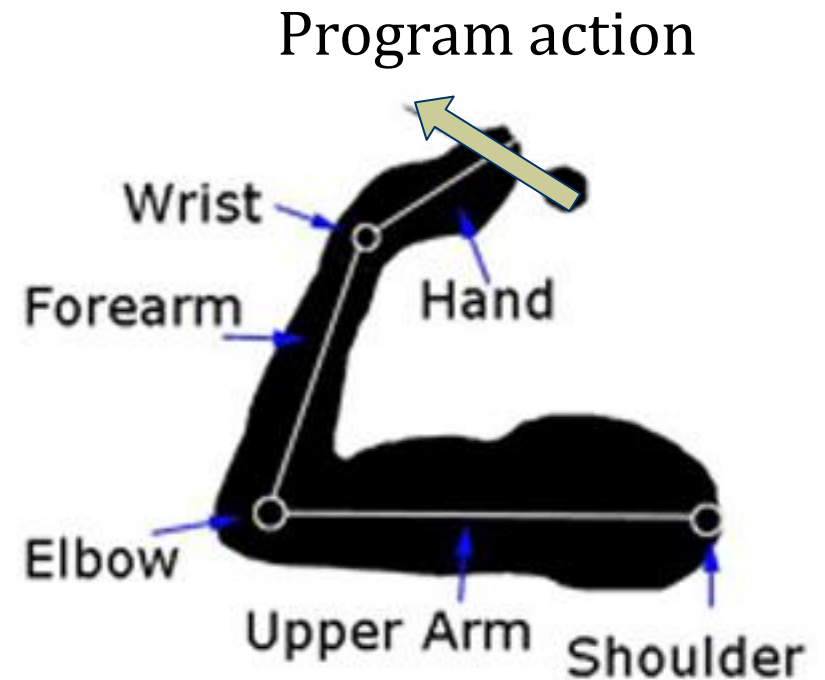- Strategy **Scores,** Target, Program Actions.

TARGET

HOW TO DESIGN A BALANCED SCORECARD:

- Strategy **Scores,** Target, Program Actions.

Program action

TARGET

Wrist

Forearm

Hand

Elbow

Upper Arm

Shoulder

HOW TO DESIGN A BALANCED SCORECARD:

- Strategy **Scores,** Target, Program Actions.

Program action

TARGET

WHAT I GOT

Wrist

Forearm

Hand

Elbow

Upper Arm

Shoulder

HOW TO DESIGN A BALANCED SCORECARD:
- Strategy **Scores,** Target, Program Actions.
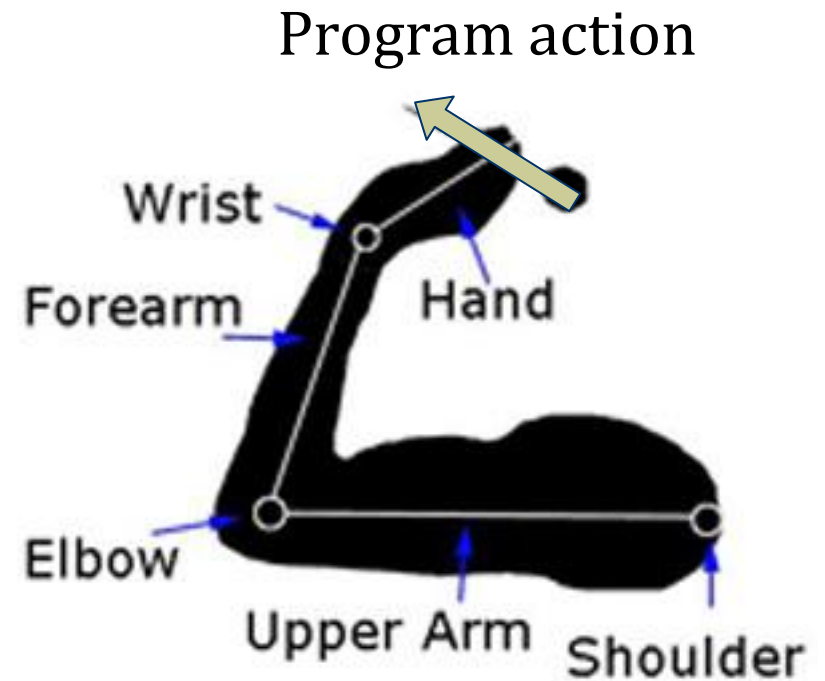
HOW TO DESIGN A BALANCED SCORECARD:

1. Know **guiding principles**: objectives & strategy.

2. Split the strategy objectives into **actions**.

3. Strategy Objective Actions from **4 perspectives**:

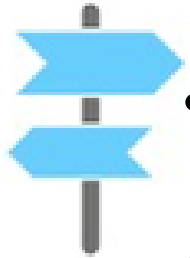   Financial

   Customer

   Internal-Business-Processes

   Learning & Growth.

HOW TO DESIGN A BALANCED SCORECARD:
- Strategy Objective Actions from **4 perspectives**:
  - **<u>FINANCIAL DIMENSION:</u>**

  - A scorecard must encourage including the financial goal in the organization strategy.
  - The financial goals matches to the phases of the organization life-cycle:
    - Grow, Maintenance, Production.
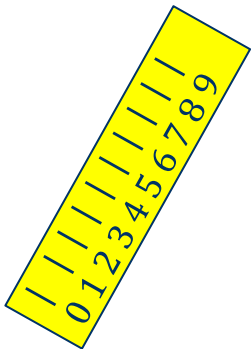
HOW TO DESIGN A BALANCED SCORECARD:

- Strategy Objective Actions from **4 perspectives**:
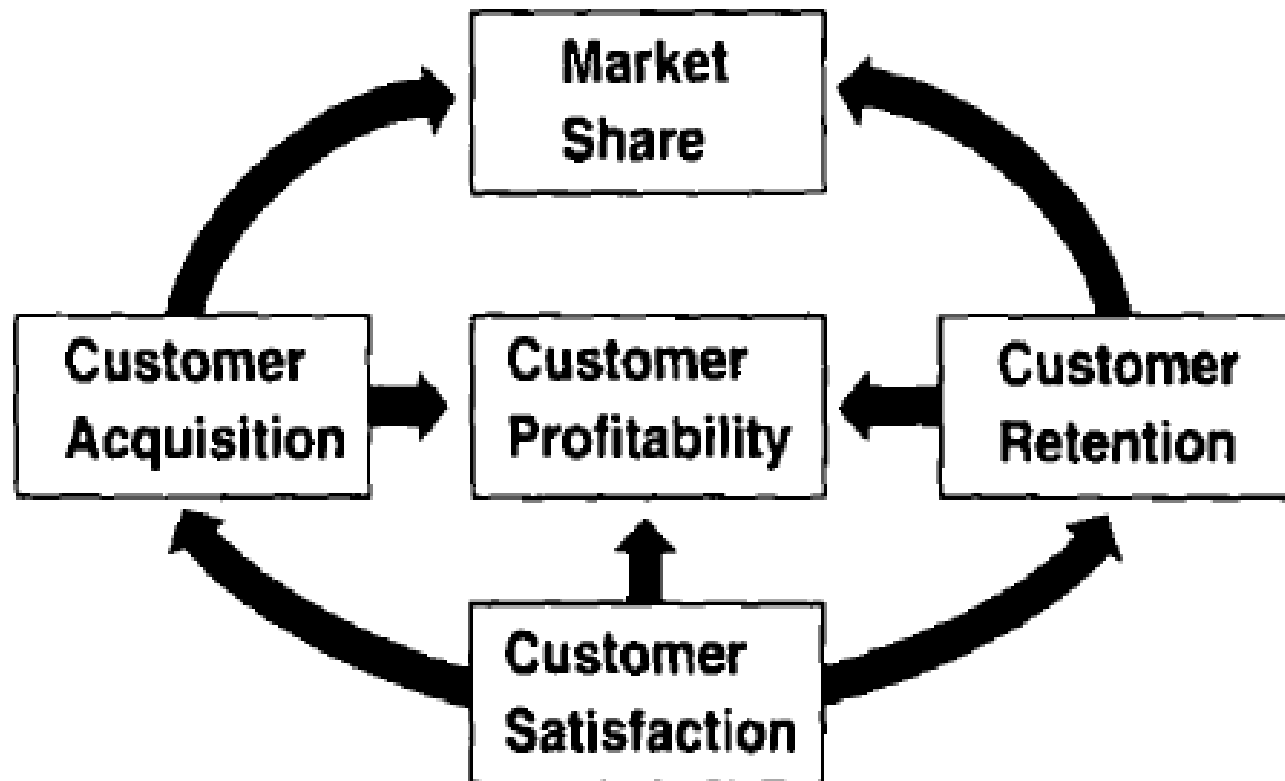 - **CUSTOMER DIMENSION:**
    - Identify those **segments of clients and markets** they want to compete.
    - **Key scores** of clients:
      - Market and Account Share (ES: *Cuota Mercado*).
      - Customer Retention: maintain and increase the market based on customer segments.
      - Customer Acquisition: increase customer base in targeted segments.
      - **Customer satisfaction**.
      - Customer profitability (ES: *rentabilidad*)

HOW TO DESIGN A BALANCED SCORECARD:
- Strategy Objective Actions from **4 perspectives**:
  - **CUSTOMER DIMENSION:**

HOW TO DESIGN A BALANCED SCORECARD:

- Strategy Objective Actions from **4 perspectives**:
  - **CUSTOMER DIMENSION:** Customer Satisfaction:

    - Time: major competitive weapon: respond rapidly and reliably to customer requests (TOYOTA Japanese manufacturers).
    - Quality.
    - Price: whether customers care about current price.

HOW TO DESIGN A BALANCED SCORECARD:

- Strategy Objective Actions from **4 perspectives**:
  - **INTERNAL BUSINESS-PROCESS DIMENSION:**

    - Once the financial and customer goals have been developed
    - The main internal processes are:
      1. Innovation processes
      2. Operations processes
      3. Post-sale process

- **INTERNAL BUSINESS-PROCESS DIMENSION**

From: https://www.linkedin.com/pulse/we-offer-three-kinds-service-good-cheap-fast-jpatrick-mccann

HOW TO DESIGN A BALANCED SCORECARD:
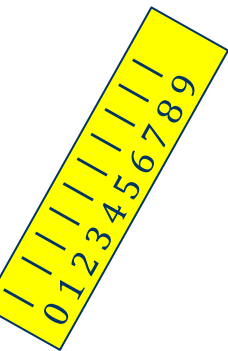- Strategy Objective Actions from **4 perspectives**:
  - **Learning & Growth DIMENSION:**
    Goals to follow in order to induct new infrastructures to improve aspects of previous dimensions.
  - Invest in the future.
  - Key scores:
    1. Employee capacities.
    2. Information system capacities.
    3. Motivation, power, delegation and objective coherency.

HOW TO DESIGN A BALANCED SCORECARD:

- EXAMPLE 1: 'Kenyon Stores'
  - **Financial**: aggressive growth , maintain overall margins.
  - **Customer**: customer loyalty , complete product-line offering.
  - **Internal Business Process**: Build the brand, fashion leader, quality product, superior shopping experience.
  - **Learning and Growth**: strategic skills, personal growth.

Dimensions	Guiding principles	Scores	Target	Program actions
Financial				
Client				
Internal Proc.				
Learn&Grow				

2. STRATEGY MAPS

STRATEGY MAPS:

- **Measures** must be chosen **more "strategically"**.
- **Relate** specific high level objectives
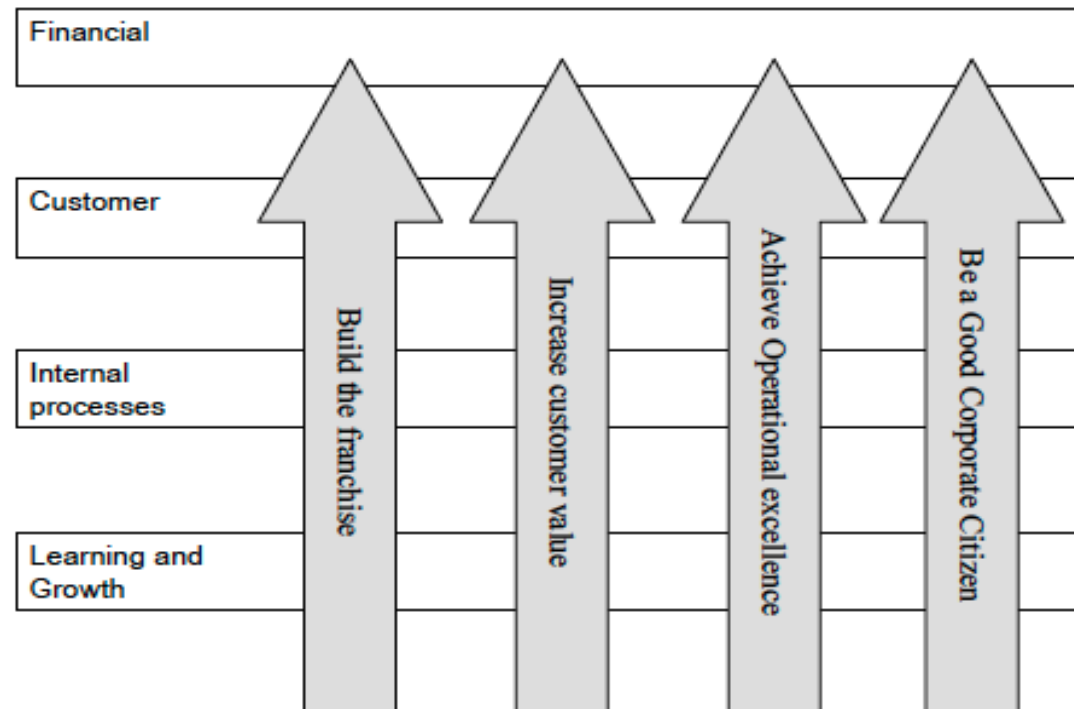- Causal relationship between objectives indicated in the "Strategy Map".

STRATEGY MAPS:

Figure 2.1: Architecture of a Strategy Map
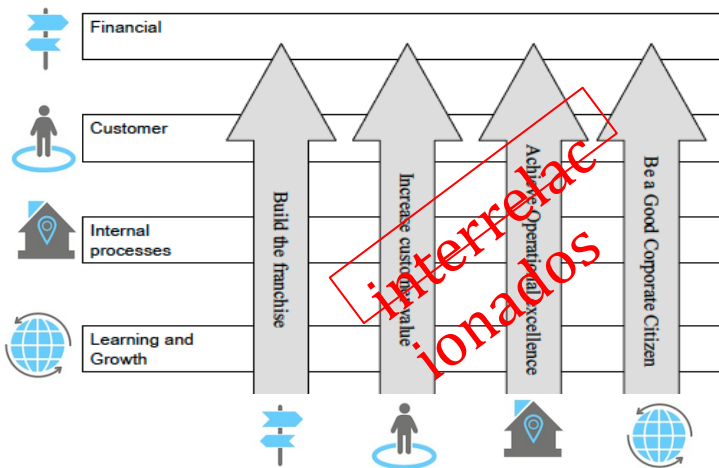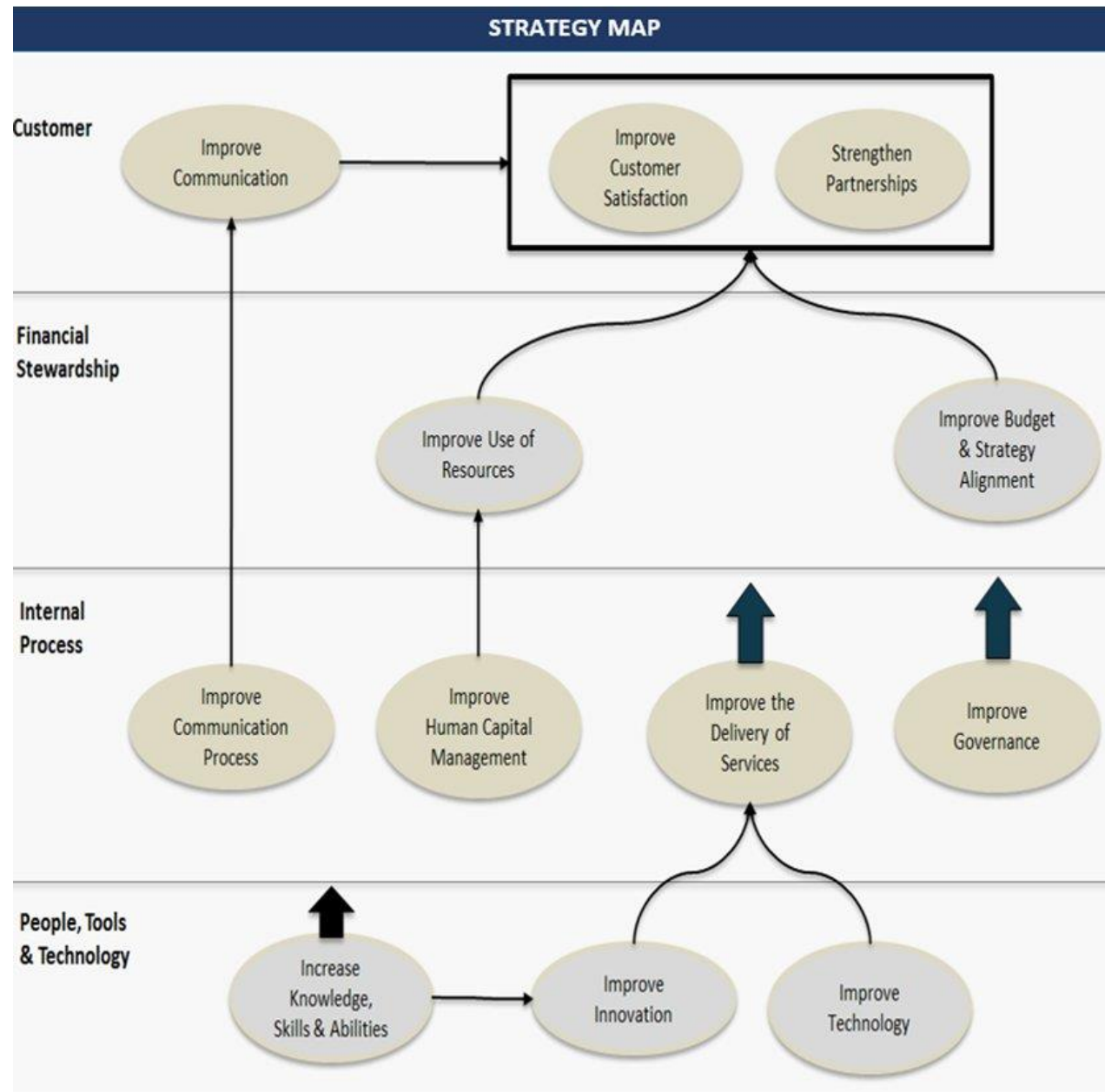**(Source: Kaplan and Norton 2001, p. 79)**

STRATEGY MAPS:

Figure 2.1: Architecture of a Strategy Map
(Source: Kaplan and Norton 2001, p. 79)

Source: fdic.gov

Source: usaid.gov
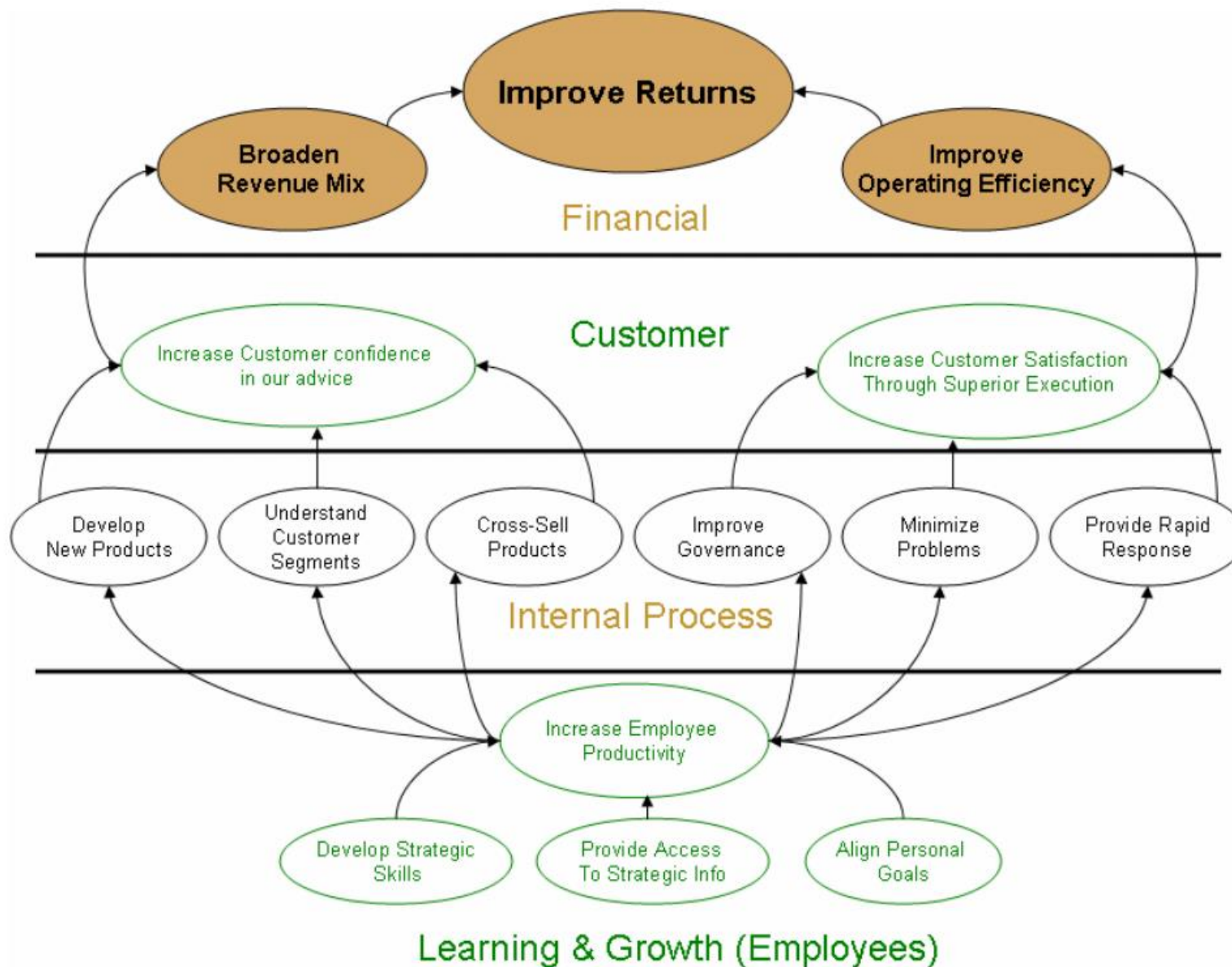
3. EXAMPLE: "VERIZON" CASE OF STUDY

Copyrighted logo from http://www.verizon.com/

Based on the study:
Datar, Srikant M., Marc J. Epstein, and Jeremy Cott. "Verizon Communications, Inc.: Implementing a Human Resources Balanced Scorecard." Harvard Business School Case 101-102, June 2001. (Revised October 2001.)

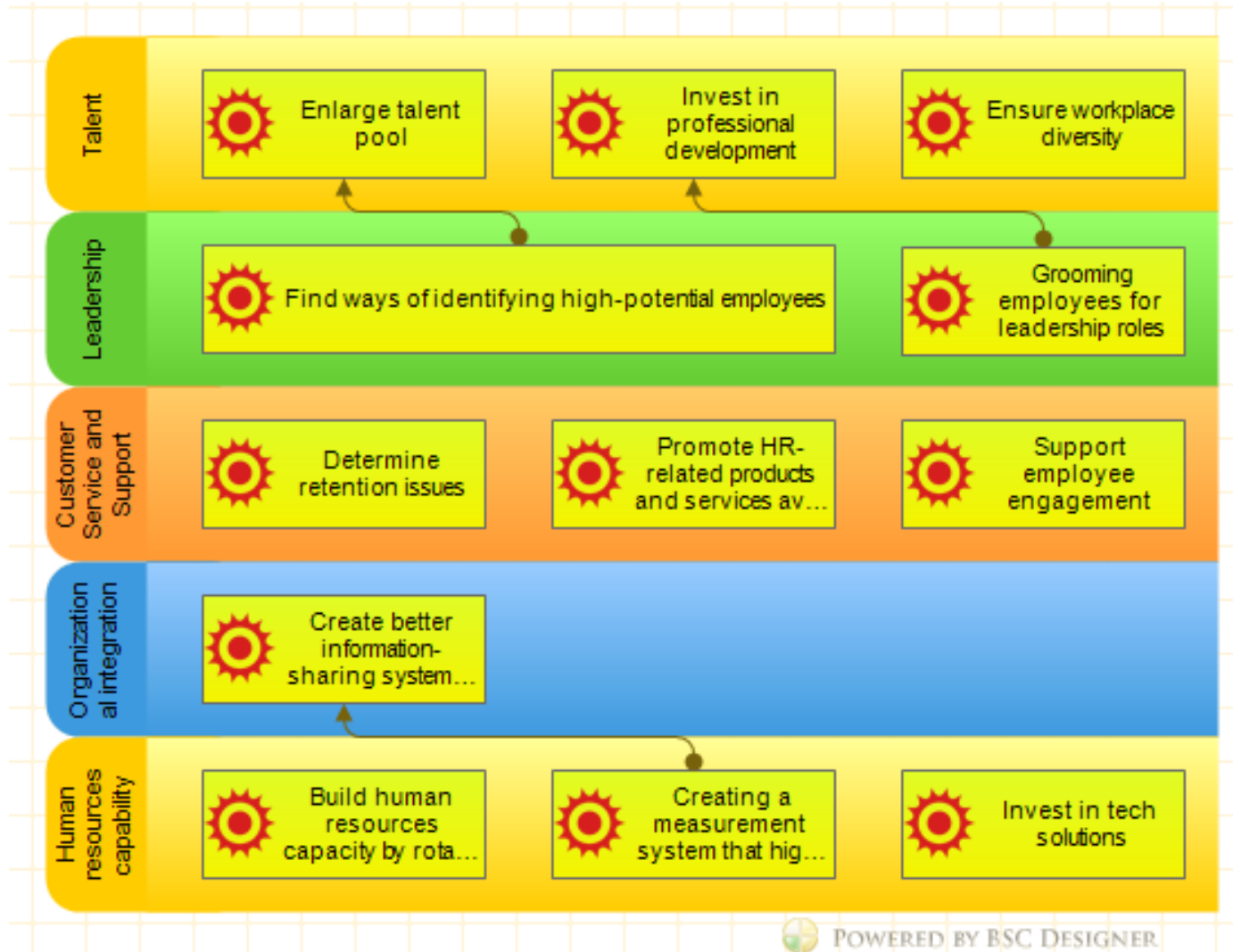- BSC in Telecommunications: VERIZON case

Human resources review:

Better profitability of human resources using better goals.

Strategic directions:

- Talent: professional development, workplace diversity
- Leadership: identify high potential leadership
- Customer Service & support: support employee engagement, identify retention issues
- Organizational Integration: information sharing systems btw company & unions
- Human Resources Capability: rotating key talent, measures for dept. achievements.

- ## BSC in Telecommunications: VERIZON case

- BSC in Telecommunications: VERIZON case

Human resources review:

Results:

- Reduce rotations of employees in the call center.
- Reduce employee dissatisfaction
- In 1% , saving $23.6 million.

3. EXAMPLE: BSC IN HEALTHCARE

- BSC in Healthcare

To what extent has the BSC been introduced to healthcare:
Hospitals, Healthcare Systems, University medical depts., long-term care, mental health centers, pharmaceutical care, health insurance companies.

- BSC in Healthcare

Reasons to use BSC in healthcare (diversity):

1. To ensure to be a **high performing** healthcare provider (Northumbria Healthcare Foundation, United Kindgom).
2. How can we demonstrate to the community that they are getting **value for our tax payer** funded services? (>AUS$ 1 billion). (Hunter New England Health District, Australia).
3. To take a more strategic approach to differentiate their services and **attract more business** (Mackay Memorial Hospital, Taiwan).
4. To achieve **better outcomes** for patients and staff (St Vicent's Private Hospital, Australia).
5. To combine **financial control** with quality improvement (Högland Hospital, Sweden).

4. DASHBOARDS ESSENTIALS

- DASHBOARDS

- DASHBOARDS


FROM: ProjectManager.com

- DASHBOARDS
  - WHAT IS A DASHBOARD?
  - Something called a dashboard :
    - Includes **graphical display mechanisms**: traffic lights, gauges, meters...etc.
    - **Overviews something** going on in the business.

- DASHBOARDS
  - WHAT IS A DASHBOARD?
  - DEFINITION:
  'It is a **visual display** of the most **important information** needed to achieve one or more **objectives**; arranged on a single screen so the information can be **monitored at a glance**'

  Stephen Few, "Dashboard Confusion,"
  Intelligent Enterprise, March 20, 2004

- DASHBOARDS
  - According to this definition:

    1. Dashboards display the information **to achieve an objective**.

    2. Dashboards **fits** on a single computer **screen**.

    3. Dashboards used to **monitor** information **at a glance**.

- DASHBOARDS
  - So… a Dashboard:
  communication tool, good understanding, good design.
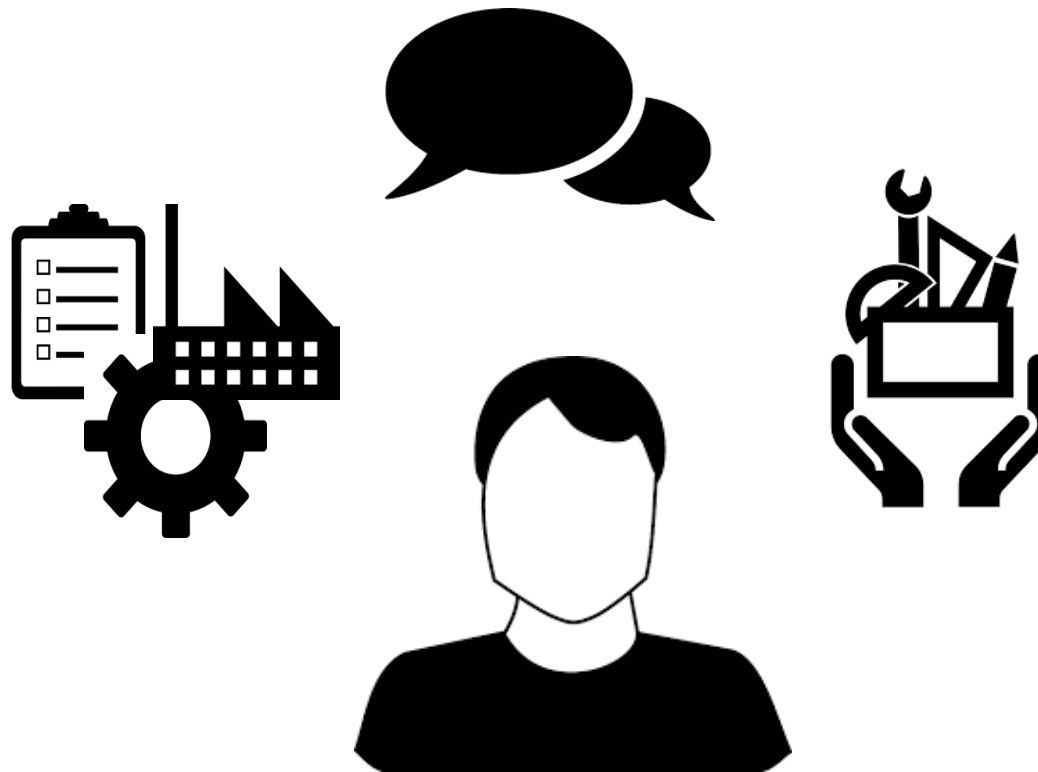
- DASHBOARDS
  - Some (obvious) Dashboard principles:
    1. Display right data to the right audience
    2. Right dashboard: adapt the dashboard model to the context
    3. Easy to find: keep the dashboard tidy
    4. Only essentials
    5. Perfection in DB design can never be achieved

- DASHBOARDS
  - Categorization of dashboards:
    - By ROLE: Strategic, Analytical or Operational.

    - By TYPE OF DATA: Quantitative, Qualitative

    - By DOMAIN: Sales, Finance, Marketing, Manufacturing

    - By TYPE OF MEASURE: **BSC**, *Six Sigma*, …

    - By MECHANISMS OF DISPLAY: Graphical, text, integrated
    - …etc.

- DASHBOARDS
  - Aspects to consider
    - More KPIs don't mean a better dashboard.
    - Functionality has higher priority than aesthetics.
    - Data Quality is usually lower than expected.
    - Align it with business processes.
    - Take into account the data context.
    - Update!
    - Train and communicate with your intended users.
    - Now, it is easy to incorporate interactivity.
    - Always define the purpose of the dashboard.

5. SCORECARDS vs. DASHBOARDS

- SCORECARDS vs. DASHBOARDS
- BOTH:
  - Tools for supporting management in companies
  - Support decision making
  - Can display KPI (key performance indicators)

- KEY DIFFERENCES:
  - Methodology, users, level of details, timing

- KEY DIFFERENCES:
  - CAR METAPHOR

- SCORECARDS vs. DASHBOARDS
- SCORECARDS:
  - Controlling the progress towards the strategy
  - Formal business methodology (holistic approach)
  - No monitoring general performance
    - Periodic snapshots
  - Present summaries, not particular data
  - Can be graphically displayed

- SCORECARDS vs. DASHBOARDS
- DASHBOARDS:
  - No specific for business environments.
  - Focus on an **specific problem** (no holistic approach)
  - Measuring general performance AND its specific aspects.
  - Used by executives / specialists and other employees
  - Not in real time but **in right-time**.
  - Concerning data but NOT summaries.
  - Data visualized nicely (raw data also available)

6. EXAMPLES OF DASHBOARDS

- DASHBOARDS IN IT INDUSTRY
  - Computer Assoc. INC.
    - Monitor & manage large number of projects
    - Dashboard: filtering, sorting, drilling down to data

    - Key Dashboards:
      - Project **watchlist dashboard**: selectable list of projects, identify if they require attention: traffic lights
      - Project **listing dashboard**: specific content, to find project with specific attributes
        - Order management list dashboard: summarize project details
        - Alert dashboard: PKI and risk indicators
        - Project list dashboard: schedule and a general summary

Example from: Harold Kerzner. Project Management Metrics, KPIs, and Dashboards: a guide to measuring and monitoring project performance. Wiley.2 ed. 2013

- ## DASHBOARDS IN IT INDUSTRY
  - ### Computer Assoc. INC.

    - Project **watch list** dashboard

Figure 7-7 Project Watchlist Dashboard ©2012 by Computer Associates, Inc. Reproduced by permission

    - **Order management list** dashboard: details

Figure 7-8 Order Management Release Dashboard ©2012 by Computer Associates, Inc. Reproduced by permission

    - **Alert** dashboard: risk

Figure 7-9 Project Management Alert Dashboard ©2012 by Computer Associates, Inc. Reproduced by permission

    - Project **list dashboard**: schedule

Figure 7-10 Project Listing Dashboard ©2012 by Computer Associates, Inc. Reproduced by permission

63

- DASHBOARDS IN IT INDUSTRY
  - Computer Assoc. INC.

Alert dashboard

Figure 7-9 **Project Management Alert Dashboard** ©2012 by Computer Associates, Inc. Reproduced by permission
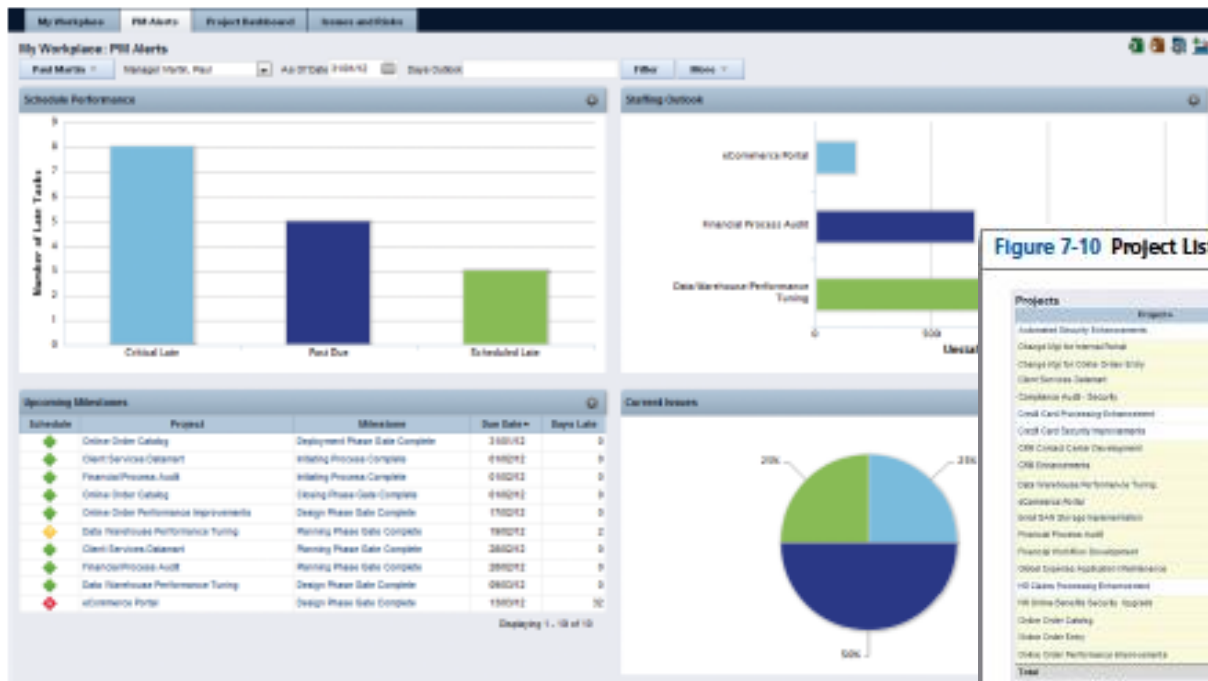
Project list dashboard

Figure 7-10 **Project Listing Dashboard** ©2012 by Computer Associates, Inc. Reproduced by permission

Figures from: Harold Kerzner. Project Management Metrics, KPIs, and Dashboards: a guide to measuring and monitoring project performance. Wiley.2 ed. 2013

- DASHBOARDS IN HEALTHCARE
  - Focused on clinical performance indicators.

  - Performance Indicator: *"a statistic or other unit of information which reflects, directly or indirectly, the performance of a health or welfare intervention, facility, service or system in maintaining or increasing the well being of its target population"*. (Armstrong, 1994)

- DASHBOARDS IN HEALTHCARE
  - Focused on clinical performance indicators.

  - Performance Indicator Properties:
    - Definable
    - Clear intent
    - Accessible
    - Reliable
    - Useful

- DASHBOARDS IN HEALTHCARE
  - Types of performance indicators.
    (by ACHS Performance Indicators)
      - Continuity of care: medical record, assessment system, consent, care evaluation, discharge, etc.
      - Access: information about services, access to the needs.
      - Effectiveness: evidence-based , process effective.
      - Patient safety: medication, infection control, blood management, etc.

- ## DASHBOARDS IN HEALTHCARE
  - ### Examples of performance indicators.
    (by ACHS Performance Indicators)
    - #### Regarding Medical Records:
      - Percentage of medical records where illegible writing resulted in an adverse event.
      - Percentage of medical records where care plans are not documented.
    - #### Regarding Blood Management:
      - Percentage of inappropriate storage
      - No. of patients transfused with Hb>100g/L

- DASHBOARDS IN HEALTHCARE
  - ICU Dashboard Example.
    - Fluid balance
    - Severity Score:
      - APACHE III :
        - [0..299]
        - Initial risk classification of severely ill hospitalized patients.
        - 20 physiologic variables

Liver
Cardiovascular
Respiratory
Renal
Immune depressed

- DASHBOARD IN HEALTHCARE

SCORECARDS & DASHBOARDS

- REFERENCES & RESOURCES:
  - Robert S. Kaplan, David P. Norton The Balanced Scorecard Translating Strategy into Action.1996.
  - Stephen Few. Information Dashboard Design: the effective visual communication of data. O'Reilly. 2006.
  - Harold Kerzner. Project Management Metrics, KPIs, and Dashboards: a guide to measuring and monitoring project performance. Wiley.2 ed. 2013
- ADDITIONAL READINGS:
  - Beata Kollberg. Exploring the use of balanced scorecards in a Swedish health care organization
  - Casos de éxito con BSC: https://balancedscorecard.org/Resources/Examples-Success-Stories

- Examples of BSC Software (among others):
  - Quick Score™ by Spider:
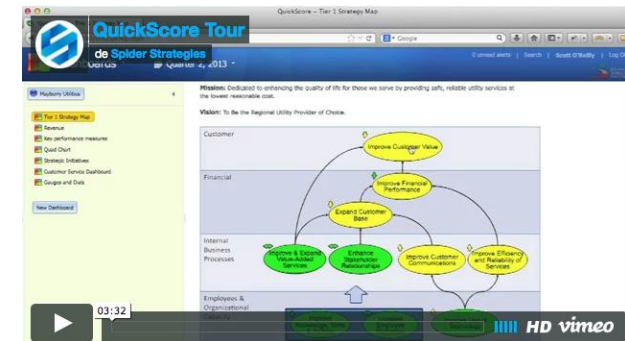
  - Smart Draw by www.smartdraw.com

SCORECARDS & DASHBOARDS
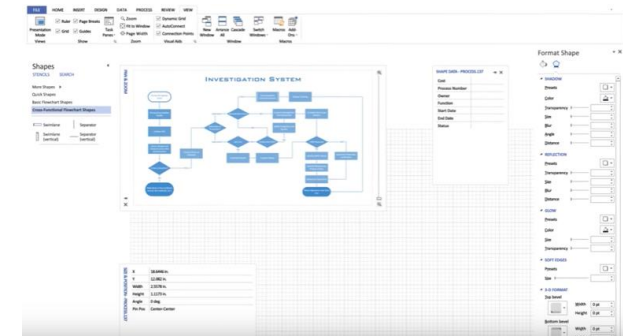
- ## Graphic resources used:

Diseñado por Freepik: http://www.freepik.es/vector-gratis/conjunto-de-iconos-de-ubicacion_968410.htm

Harold Kerzner. Project Management Metrics, KPIs, and Dashboards:

a guide to measuring and monitoring project performance. Wiley.2 ed. 2013
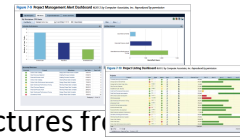
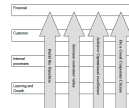Strategy Maps pictures from: S. Kaplan, David P. Norton

The Balanced Scorecard Translating Strategy into Action.1996

Car icons by https://icons8.com

https://instituteforhomoeopathicmedicine.wordpress.com/2016/04/22/why-does-hahnemann-say/

Captions from ProjectManager.com

http://www.nemours.org/

Picture of Volkswagen Polo