

PROJECT MANAGEMENT FOR SCIENTISTS

SCIENTIFIC VISIONS & STRATEGIES

CHRISTOPH U. KELLER, C.U.KELLER@UU.NL

STERREKUNDIG INSTITUUT UTRECHT

UTRECHT UNIVERSITY

WWW.ASTRO.UU.NL/~KELLER

OUTLINE

- Vision, Strategy, and Tactics
- (Scientific) Visions
- Vision Requirements
- Strategic Thinking and Planning
- Strategic Analysis (SWOT)
- Strategic Goals (SMART)
- Tactics

VISION, STRATEGY & TACTICS

- **Vision:** a dream that may never be reached, concentrates on the future, inspires, provides clear decision-making criteria
- **Strategy:** pro-actively planned long-term actions to reach a well-defined (strategic) goal
- **Tactics:** short-term reactions to externally driven events to stay on the fastest path to the goal

(SCIENTIFIC) VISIONS

- Dream
- Imagination (“Imagine a day when ...”)
- Sudden insight
- Idea
- Discovery
- Thought
- ...

VISION REQUIREMENTS

- Clear (unambiguous, clear focus and direction)
- Inspiring (a bright future that energizes)
- Engaging (people want to join)
- Possible (not impossible)
- Forward-looking (future, hoped-for state)

VISION STATEMENT

- Brief: single (or few) sentences
- Leading: Guides strategic decisions
- Concise: Captures essence of a project
- Aspiring: Describes best possible outcome
- Attractive: Helps getting project funded

- Rarely required for projects
- Almost all organizations have it

GOOD VISION STATEMENTS

- Written in present, not future tense
- Summarizes with powerful phrase
- Describes best possible outcome
- Uses straightforward language
- Evokes emotions
- Helps build same picture in people's minds

Based on www.changefactory.com.au/articles/business-strategy/the-components-of-a-good-vision-statement/

POOR VISION STATEMENTS

- Use generic phrases
- Confuse visions with clear goals and objectives
- Describe process or method rather than outcome
- Provide no measure of success
- Not visionary, inspiring, engaging

GOOD OR BAD? (1)

- “Maximize our customers' ability to get their work done”
- “There will be a personal computer on every desk running Microsoft software.”
- “Create experiences that combine the magic of software with the power of Internet services across a world of devices.”

GOOD OR BAD? (2)

- “To build the largest and most complete Amateur Radio community site on the Internet.”
- "PepsiCo's responsibility is to continually improve all aspects of the world in which we operate - environment, social, economic - creating a better tomorrow than today.”
- “To be a world-leading institute in stellar astrophysics and the leading institute for optical astronomical instrumentation in the Netherlands.”

MISSION STATEMENT

- Formal, short, written statement of purpose of organization
- Guides actions of organization by spelling out its overall goal
- Provides a sense of direction, and guide decision-making
- Provides framework or context in which company's strategies are formulated

MISSION STATEMENT EXAMPLES

- NOVA's mission is two-fold:
 - To carry out front-line astronomical research in the Netherlands
 - To train young astronomers at the highest international level
- Applied Materials' mission is to be the leading supplier of semiconductor fabrication solutions worldwide-through innovation and enhancement of customer productivity with systems and service solutions.

STRATEGY

Strategy makes a vision come true:

1. Analyze the current situation
2. Define (strategic) goals that bring you (closer) to achieving your vision
3. Map route(s) to those goals

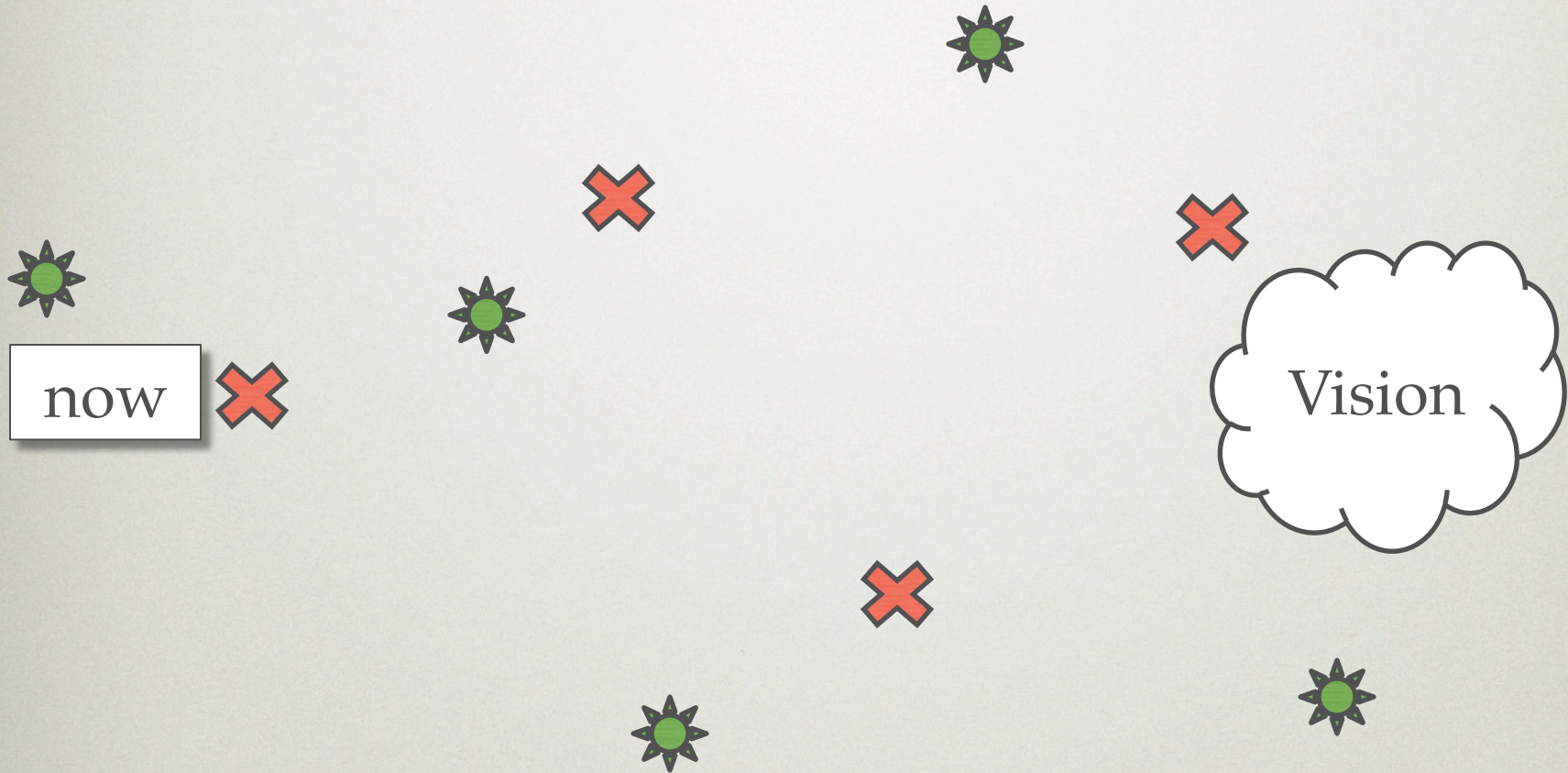
STRATEGIC PLANNING: VISION

now

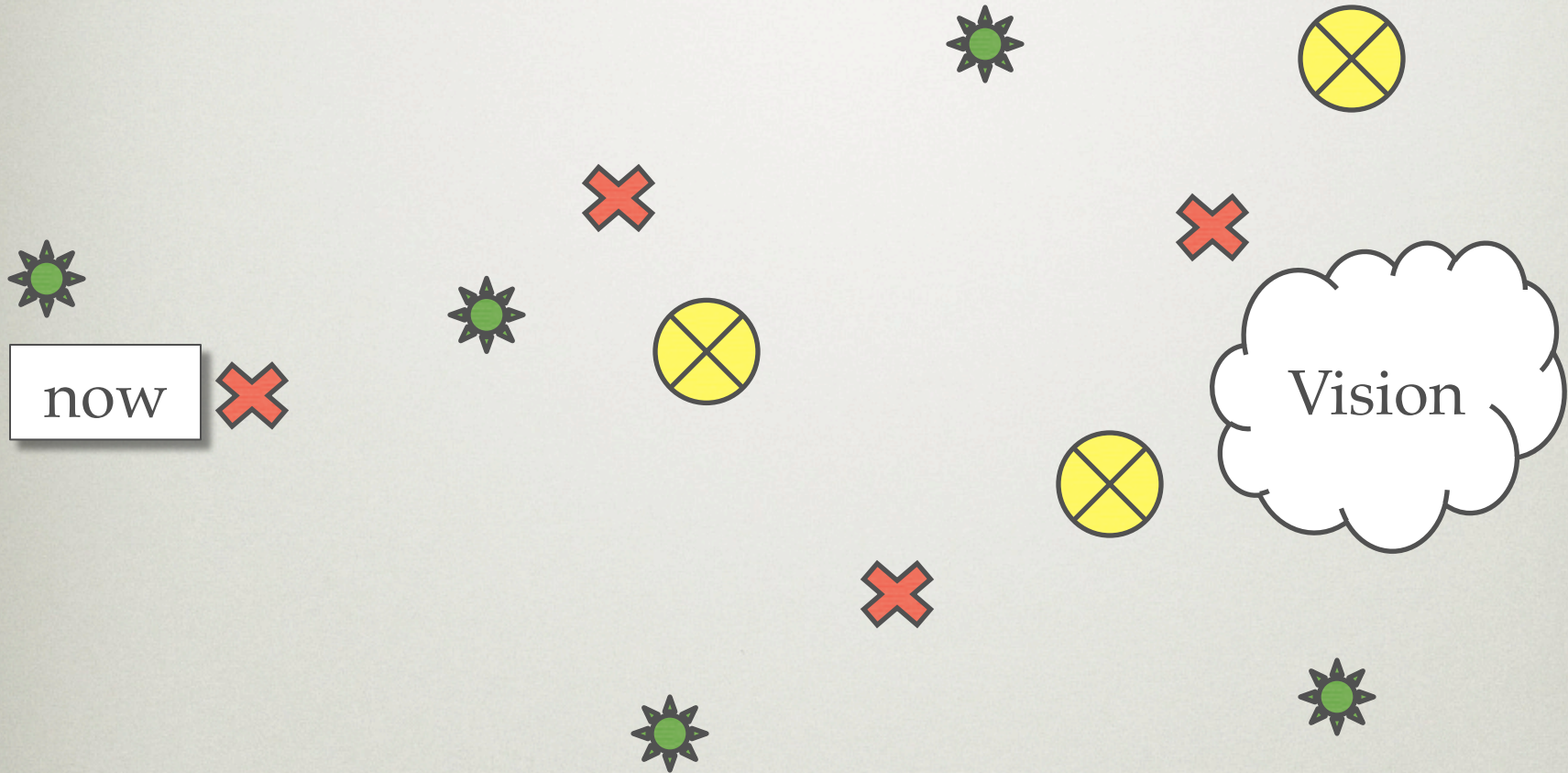


Vision

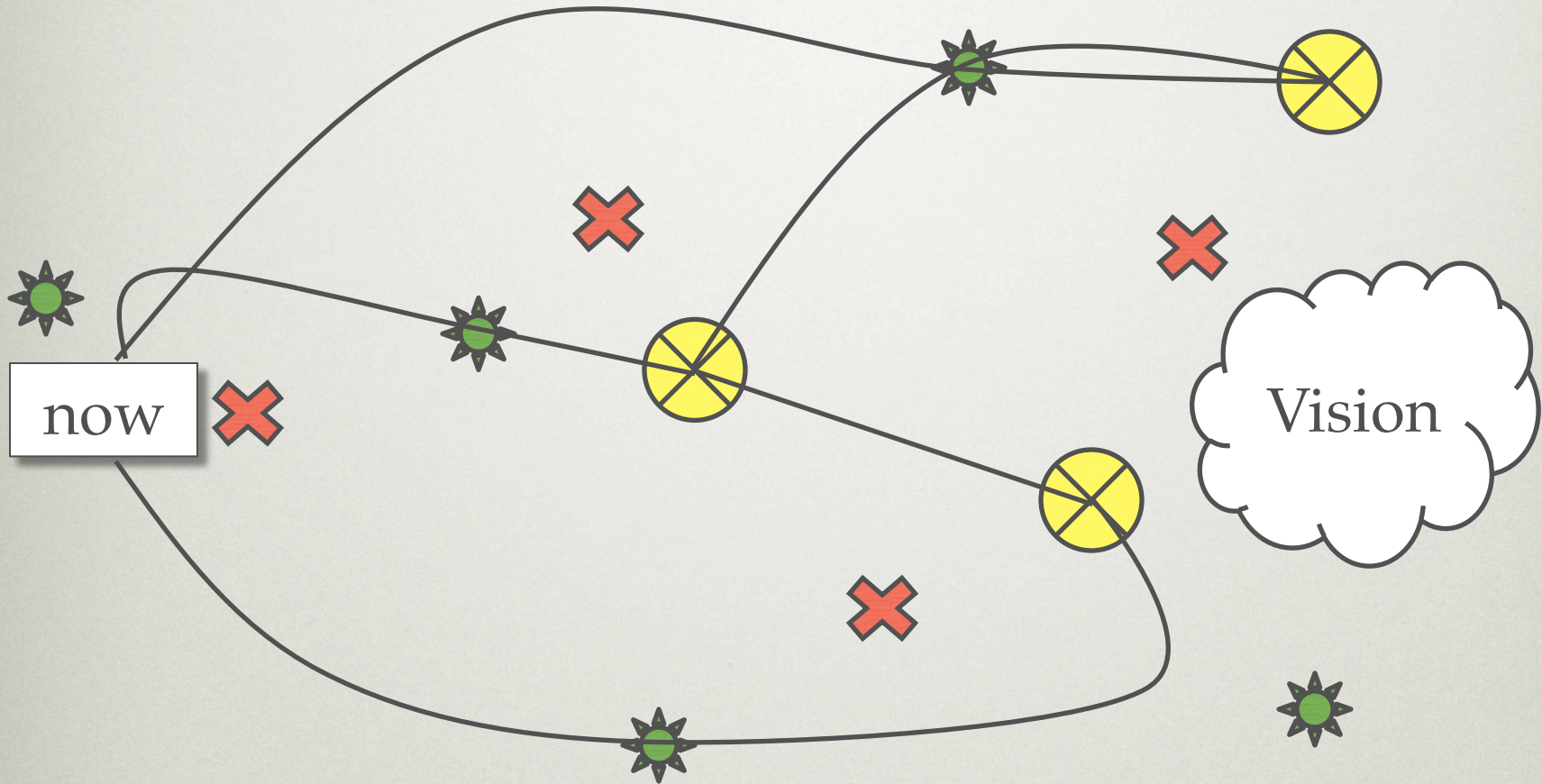
STRATEGIC PLANNING: SITUATION



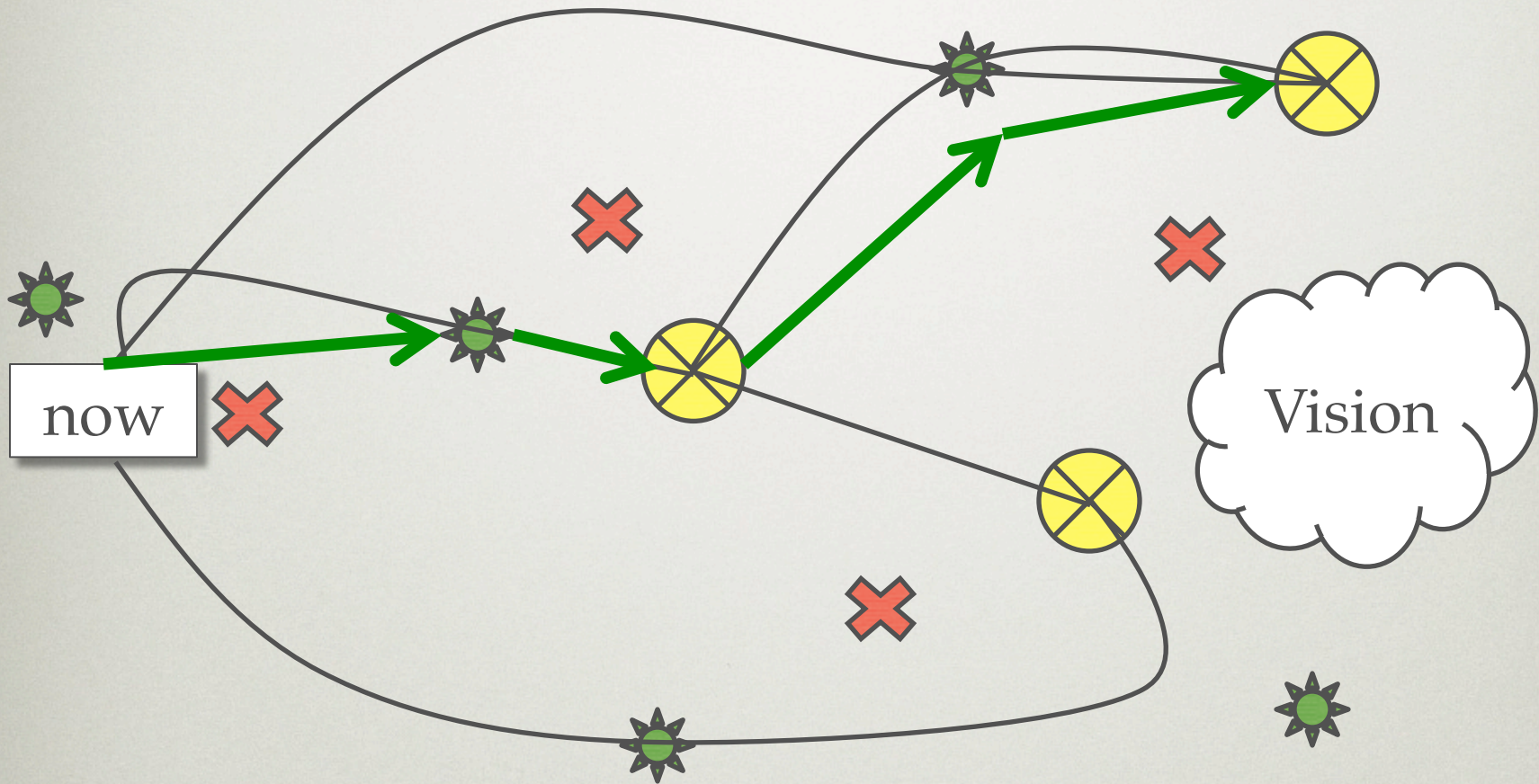
STRATEGIC PLANNING: GOALS



STRATEGIC PLANNING: PATHS



STRATEGIC PLANNING: PROJECTS



VACATION STRATEGY

- **Vision:** vacation in a warm, sunny place
- **Situation:** The weather is bad and I feel bad, but I have the money to pay for transportation to various warm, sunny place
- **Target:** spend upcoming vacation in Egypt
- **Path:** book flight, hotel

DRAW-SEE-THINK-PLAN

Alternative way to summarize planning:

- **Draw** – ideal state
- **See** – what current state is, how far to ideal state
- **Think** – about specific actions needed to bridge current state and ideal state
- **Plan** - resources needed to carry out these actions

SWOT SITUATION ANALYSIS

positive	<u>S</u>trengths	<u>O</u>pportunities
negative	<u>W</u>eaknesses	<u>T</u>hreats
	present / internal	future / external

WHAT TO ANALYZE WITH SWOT

- Knowledge
- Competition
- Partners
- Technology
- Funding
- People
- Culture
- Politics

Consider at these levels:

- Organization
- Local
- National
- International

EXAMPLE SWOT ANALYSIS

- S: Well-focused, recognized research program
- W: Limited attractiveness of research area
- O: Advent of exciting new, related research areas
- T: Loss of critical staff

SWOT TO STRATEGIC GOALS

- Use strengths to take advantage of opportunities
- Use strengths to avoid threats
- Use opportunities to overcome weaknesses
- Minimize weaknesses and avoid threats

STRATEGIC GOALS AND SWOT

Table showing how strategic goals maintain and leverage strengths, remedy weaknesses, optimize impact of opportunities and eliminate or minimize impact of threats

Goal	Strengths							Weaknesses						Opportunities								Threats		
	S1	S2	S3	S4	S5	S6	S7	W1	W2	W3	W4	W5	W6	O1	O2	O3	O4	O5	O6	O7	O8	T1	T2	T3
G1: SRON collaboration	X	X	X	X			X	X		X						X	X	X	X			X	X	
G2: Internet presence			X					X	X	X	X			X	X		X		X	X				X
G3: BSc program	X	X	X		X		X	X		X				X				X	X	X				X
G4: MSc program	X	X	X	X	X		X	X		X				X	X	X	X	X	X	X	X			X
G5: new professor	X		X	X				X		X		X		X	X			X	X			X		
G6: Instrumentation staff				X	X		X		X			X	X			X	X	X	X	X	X	X		X
G7: EPICS		X	X			X	X	X		X					X			X	X	X		X	X	
G8: Atmospheres	X	X	X	X	X	X	X	X		X					X		X		X				X	
G9: Building				X	X		X								X	X	X	X	X					
G10: NOVA group	X		X		X			X		X		X			X	X	X	X			X		X	X
G11: Funding	X	X	X	X	X	X	X		X			X		X	X	X	X			X	X	X	X	X
G12: Tenure track													X											X

SMART STRATEGIC GOALS

- **S**pecific (well-defined, clear)
- **M**easurable (know if/ when goal has been achieved)
- **A**greed (by all stakeholders)
- **R**ealistic (within available resources, time, experience, etc.)
- **T**ime-based (due date, adequate time)

GOOD OR BAD (1)

- The desired reputation of an internationally renowned university is partly based on internally supported core values.
 - 50% of staff know the core values (employee survey)
 - 20% of students know the core values (student survey)

GOOD OR BAD (2)

- Utrecht University, being a classical university, strengthens its reputation as a renowned research university with excellent teaching, both nationally and internationally.
- The image of the University as seen by key opinion leaders in the Netherlands and abroad concurs with our achievements and is in conformity with the desired qualities.
- The University has manifestly entered into collaborations with renowned institutes and organisations.
- Financial support through sponsorships has tripled.

GOOD OR BAD (3)

- The University plays a prominent role in the public debate.
 - Within the social debate, each focus area is prominently represented by one specific subject.
 - The presence of Utrecht University in the media has increased by 10%.

TACTICS VS. STRATEGY

- Tactics: systematic determination and scheduling of immediate or short-term activities required to achieve strategic goals.
- Strategy without tactics is the slowest way to achieving the goal.
- Tactics without strategy is a random walk.