Michigan Society of Professional Engineers

Virtual Conference – May 5th, 2021

PROJECT EVEREST

Reaching New Heights in Engineering & Project Management

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Project Everest:
Reaching New Heights in Engineering & Project Management

- Different type of project than we are used to but also very much the same in terms of the planning and processes
- Incorporated both waterfall and agile methodologies
- Strategic planning, scheduling and risk management were paramount because poor planning in these areas leads to loss of life on the mountain every year

Project Charter

Reach the Summit & Return Home Safely

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SURYA
STATUTORY DIRECTIVE: SMOKING IS INJURIOUS TO HEALTH

ICN
A total technology
solutions to help you
reach ultimate goals

TENZING-HILLARY AIRPORT CIVIL AVIATION OFFICE

1

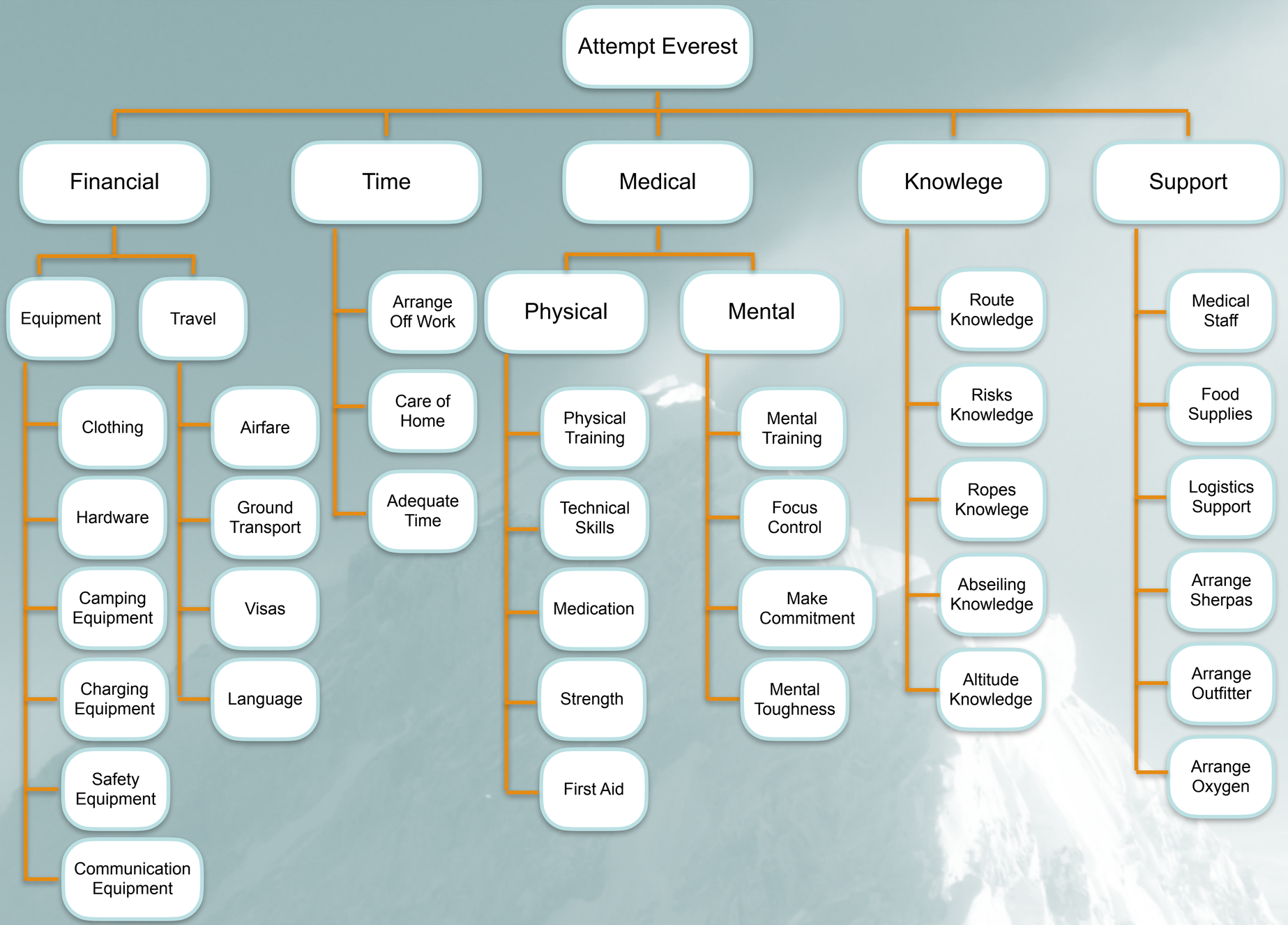
Monitoring Feedback

Environmental Factors & Performance Data

Maintaining a Future Mindset

Crucial Planning & Sequencing of Activities

Sample Work Breakdown Structure for Attempting Everest



Communication Challenges

Challenges with Stakeholder Communications

Base Camp – 17,500ft / 5,334m

FOSTER'S

Roles and Responsibilities

Responsibilities:

Adam - Technology and Electronics

Responsibilities:

Laura - Medical Challenges

Responsibilities:

Dan - Altitude and Acclimatization

Responsibilities:

Alan - Problem Solving

Responsibilities:

Required to Take on Different Roles

Individual Accountability

Shared Accountability

Poll Question #1:

How effective are you at multitasking?

A) 5 – Multitasking Rockstar

B) 4 – Very effective

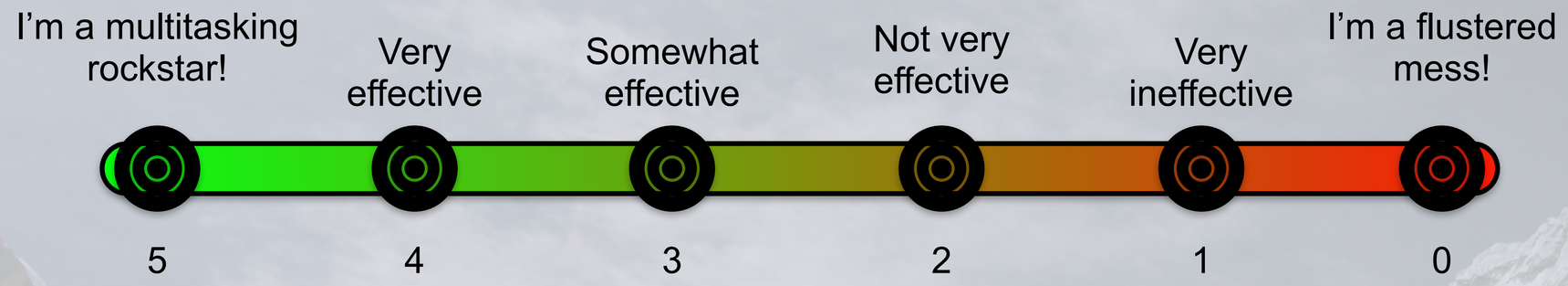
C) 3 – Somewhat effective

D) 2 – Not very effective

E) 1 – Very ineffective

F) 0 – Flustered mess

Multitasking



- Only 2.5% of the population is estimated to be proficient at multitasking *[Journal of Experimental Psychology]*. Ironically, these people are the less likely to multitask. It’s those of us that think we’re in the 2.5% that do it most often and end up killing productivity.

- Up to 40% of productivity time is lost by frequent task switching *[Meyer, Psychological Review]*

Iterative Approach

Planning - Execution - Review - Repeat

Agile vs. Waterfall

The Agile Manifesto:

- **Individuals and interactions** over processes and tools
- **Working software/solutions** over comprehensive documentation
- **Customer collaboration** over contract negotiation
- **Responding to change** over following a plan

Agile Principles:

- Flexible, adaptive process
- Iterative approach with sprint cycles
- Loosely defined requirements
- Goals and results based
- Change and uncertainty is embraced
- Dedicated, self-organized team

The Waterfall Manifesto:

- **Processes and tools** over individuals and interactions
- **Comprehensive documentation** over working software/solutions
- **Contract negotiation** over customer collaboration
- **Following the plan** over responding to change

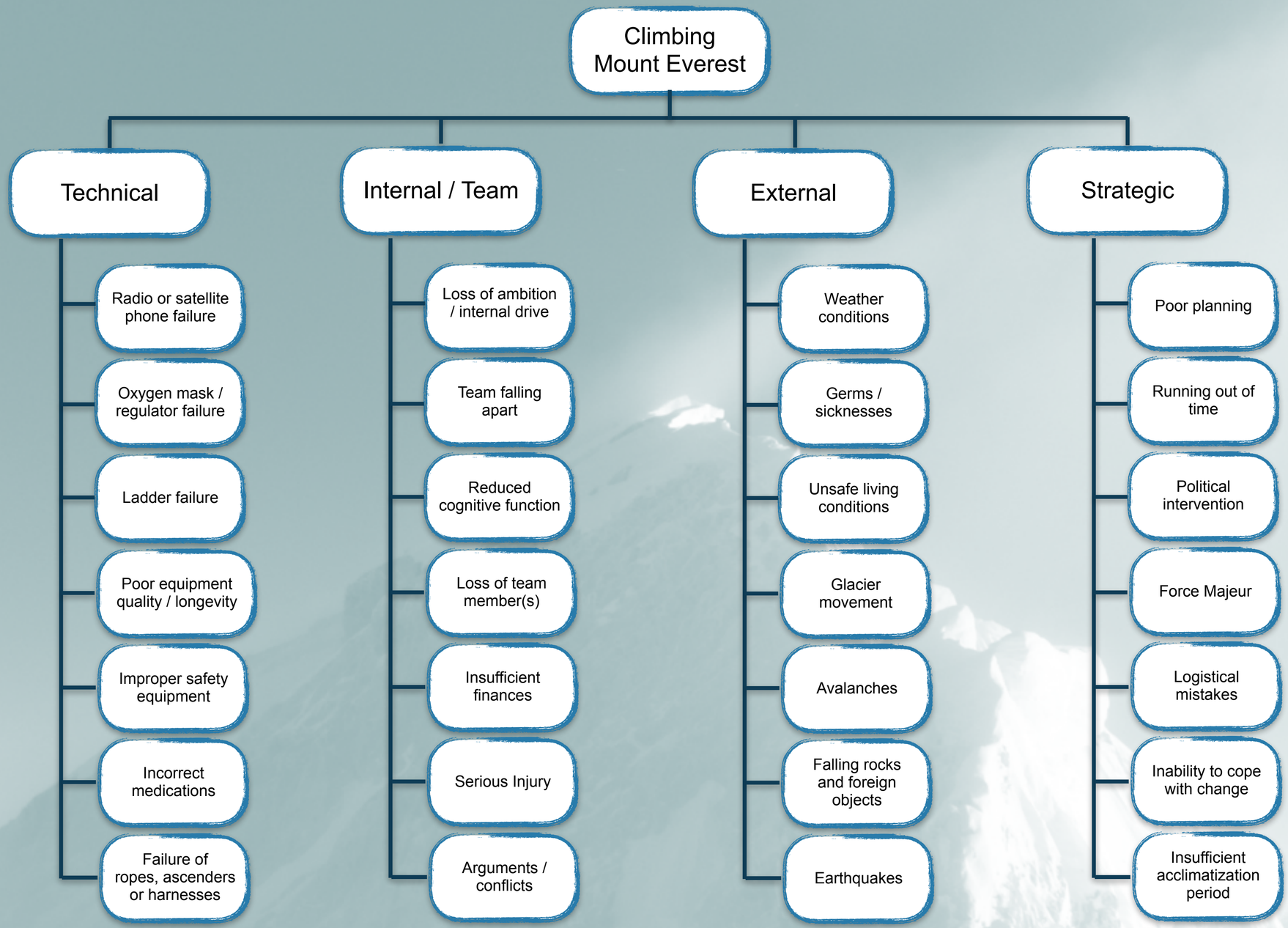
Waterfall Principles:

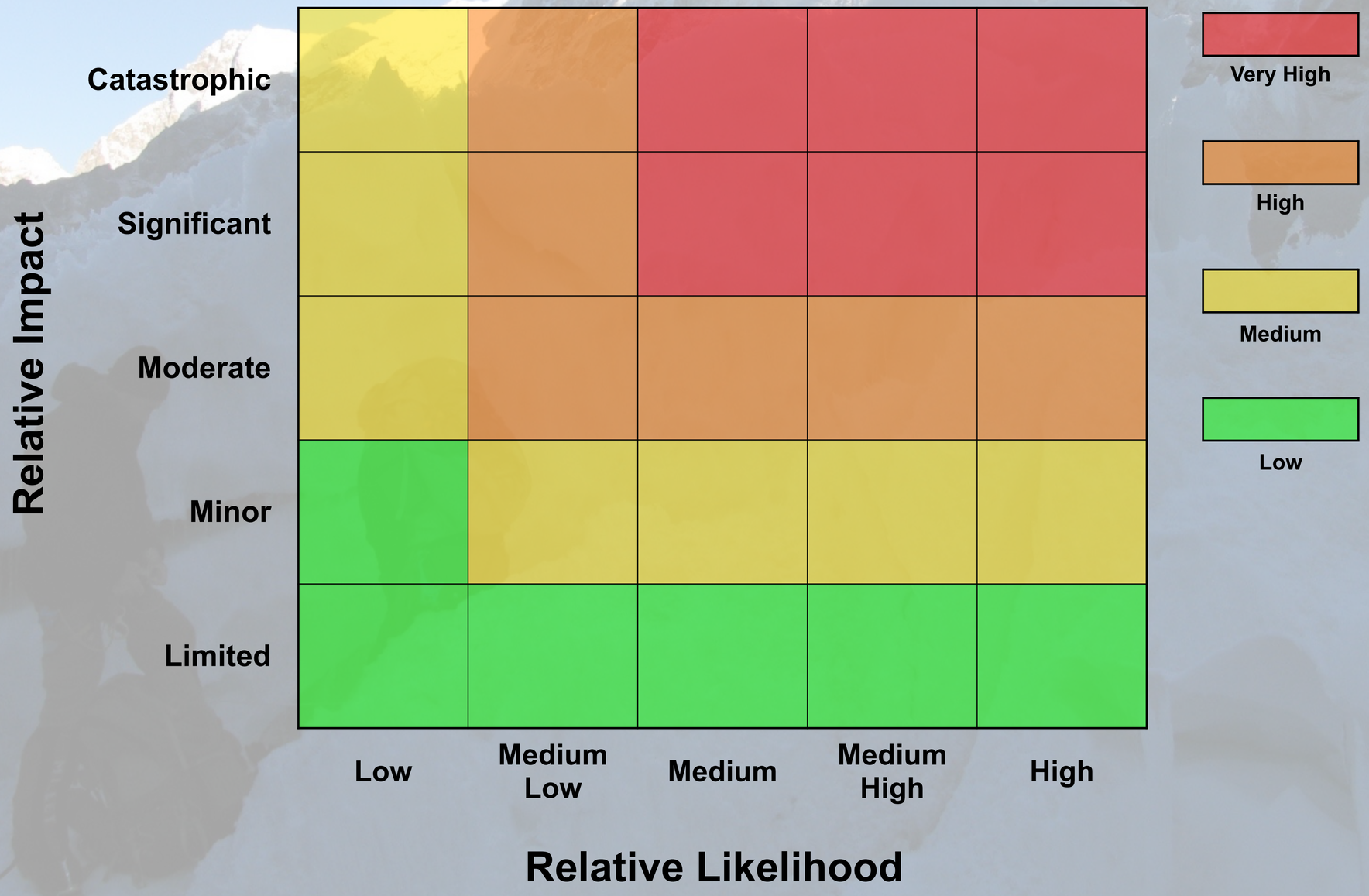
- Rigid, linear process
- Sequential approach with phases
- Well defined requirements
- Tasks and procedure based
- Taxing change control procedures
- Structured team with defined roles

Risk Management

Developing Risk Mitigation and Response Strategies

Risk Breakdown Structure




Relative Impact
Catastrophic
Significant
Moderate
Minor
Limited
Low
Medium Low
Medium
Medium High
High
Relative Likelihood
Very High
High
Medium
Low

MILLET
MILLET
MILLET

Camp 1 – 19,000ft / 5,800m

Camp 2 – 20,300ft/6,200m

Controlling Costs

Strategic Allocation of Resources

Camp 3 – 23,600ft / 7,200m

Marmot

HATCH

Quality Management

Auditing & Inspection Challenges

Camp 4 – 26,200ft / 8,000m

OZARK

HATCH
Challenge
Ride

Building Relationships

Poll Question #2:

What have you found to be the most important in building professional relationships?

A) Technical competence

B) Communication and transparency

C) Trust

D) Mutual respect

E) Open-mindedness

F) Integrity

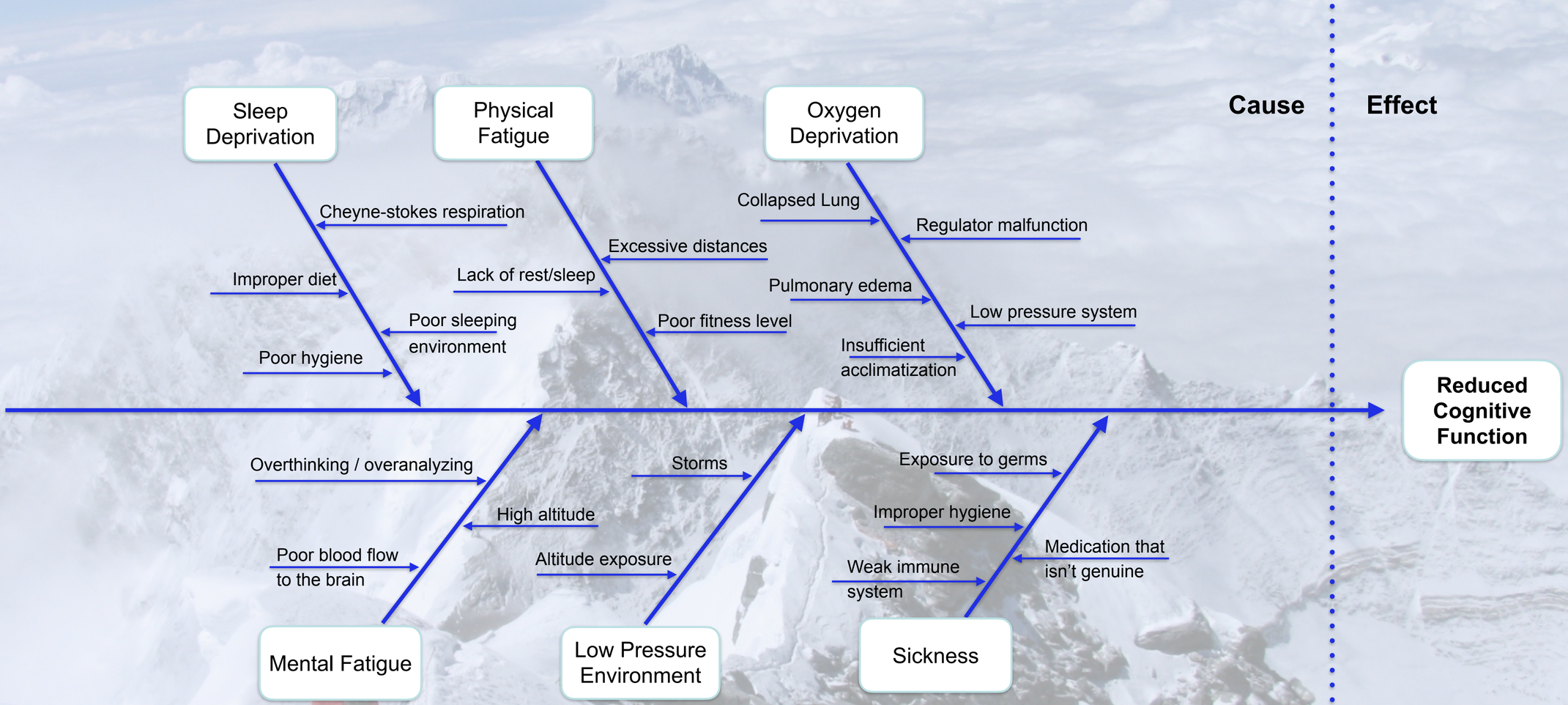
Resilience

The Summit – 29,029ft / 8,848m

HATCH
MOUNTAIN
HARD
WEAR

Lessons Learned & Root Cause Analysis

Cause & Effect (Ishikawa) Diagram



Root Cause Analysis: The Five “Why’s”

PROBLEM: Running out of oxygen on the summit ridge

Why?

Our oxygen masks leaked

Why?

The seal was not good and the mask wasn’t designed to work with our goggles

Why?

The masks we were using were a very economical version

Why?

We didn’t put in the required resources and time to get the right oxygen masks

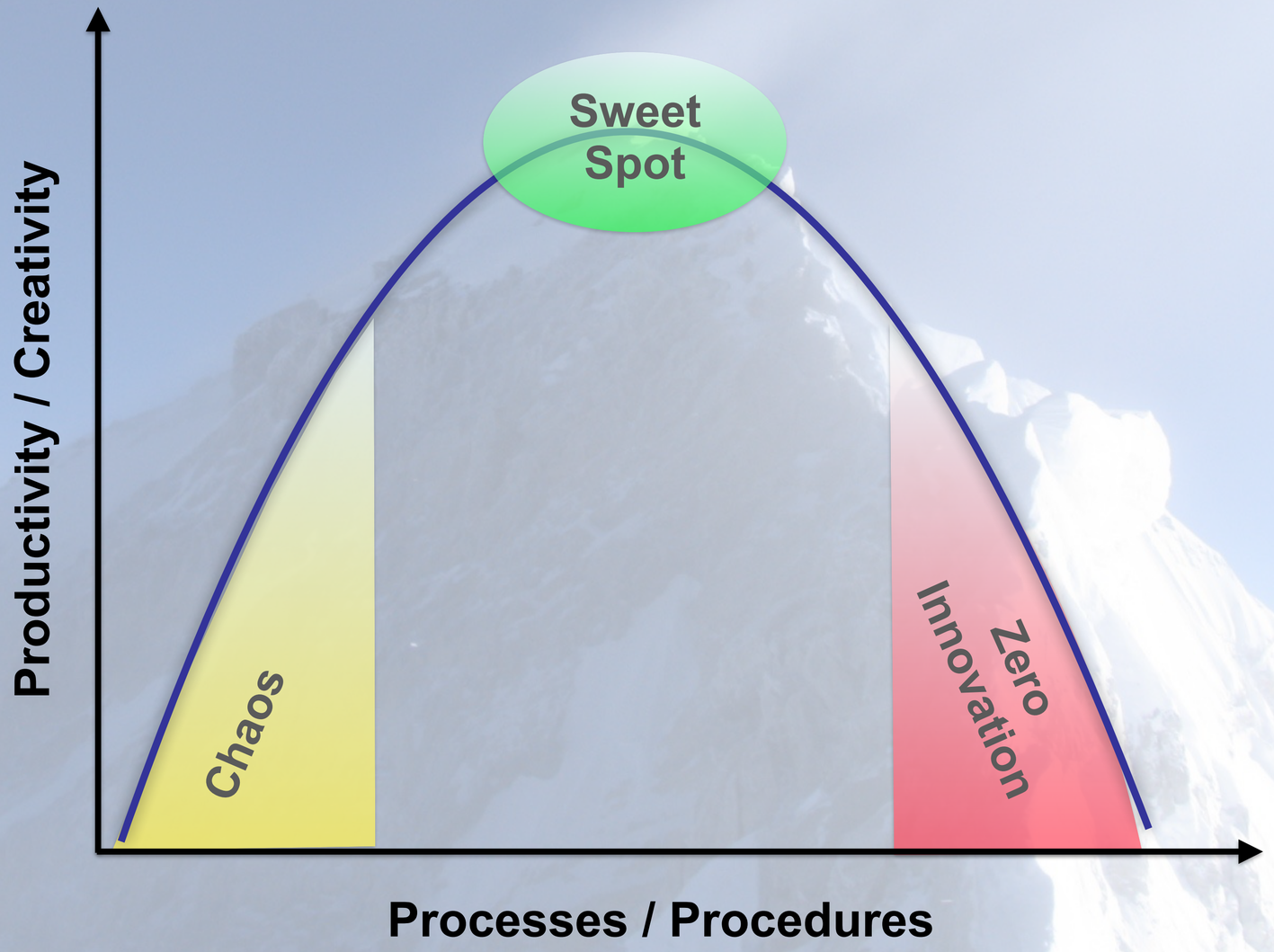
Why?

We left it to the last minute and were rushed in our decision making process

MADE
GLORY

Empowering Team Members

Empowering People



Poll Question #3:

Where on graph is your organization?

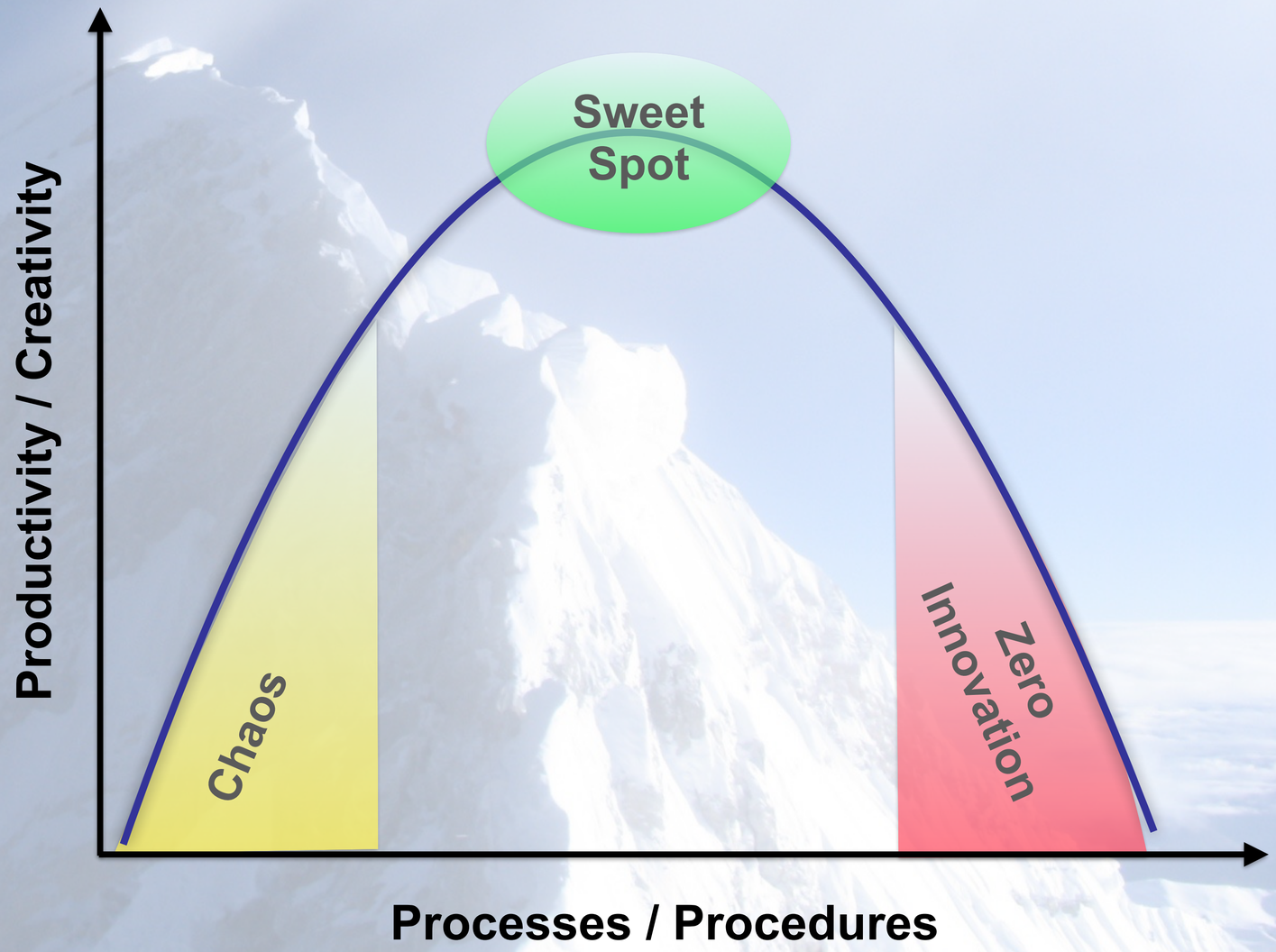
A) Complete chaos

B) Tending towards chaos

C) The sweet spot

D) Tending towards too much structure

E) Innovation has been stifled

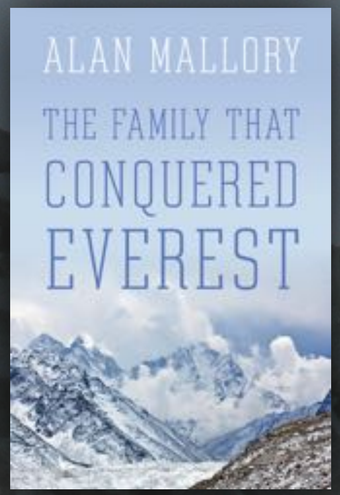


Yeti Airlines
9N-AET

“It’s not the Mountain we Conquer, but Ourselves”
– Sir Edmund Hillary

Questions?

Alan's Book can be found on:



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