Developing an Indigenous Cultural Values Based Emoji Messaging System:
A Socio-Technical Systems Innovation Approach

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" A Picture Is Worth A Thousand Words "

2020 : 2 billion emoji sent in IOS daily • 700 million emojis post in Facebook daily
• Emoji v13.0 • 3,304 emojis

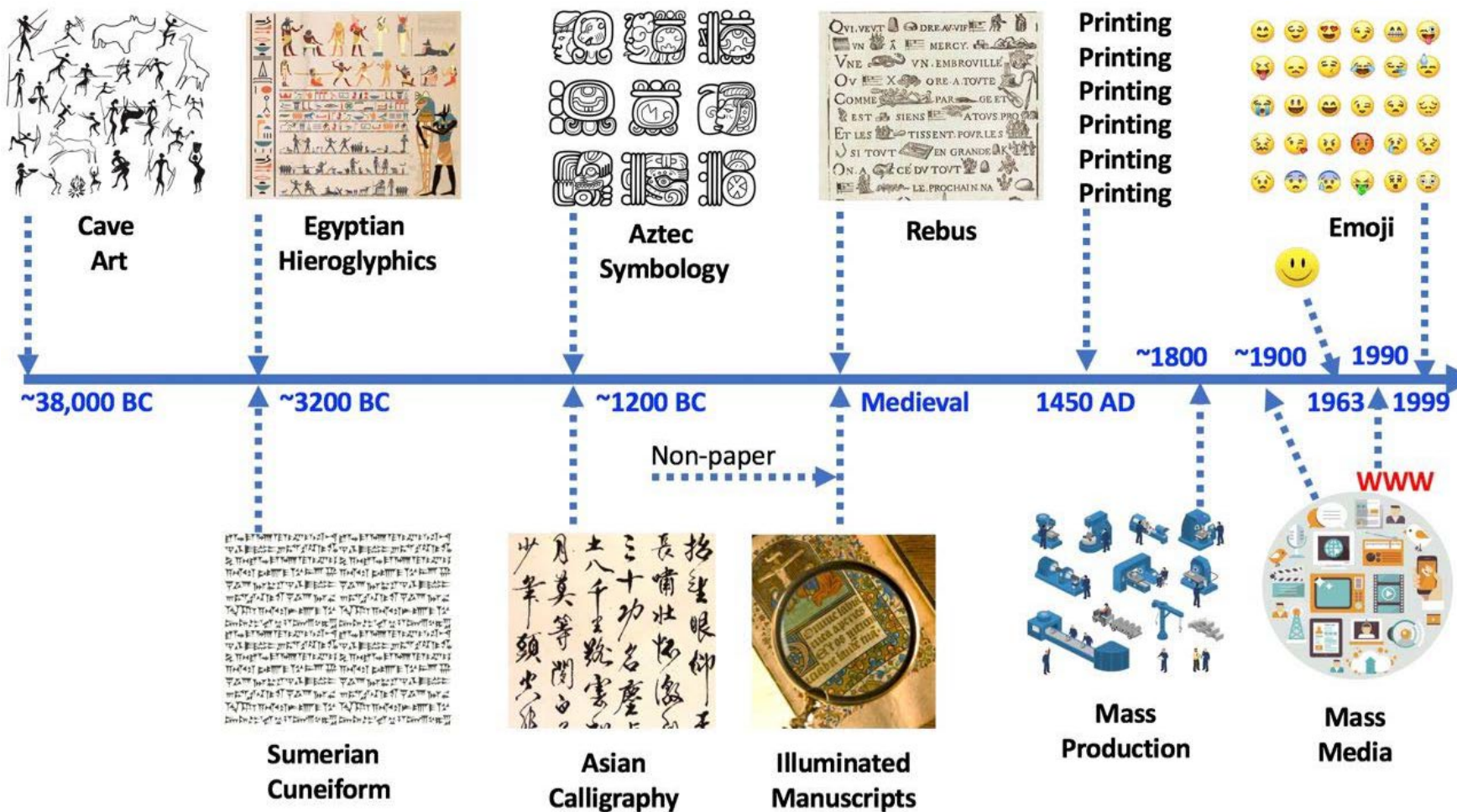**1999 :** 176 emojis first created for NTT DoCoMo, Japan

How would the use of Emoji in IMS influence the life of the indigenous people in global south?

• Universality vs Diversity • Cultural and Social Behaviour Hegemony
• Sustainability of Indigenous Cultural Value and Identity

We are presenting to you one of the on-going research work carried out by the
**Institute of Social Informatics and Technological Innovation (ISITI),
Universiti Malaysia Sarawak
Sarawak, Malaysia**
with a community of Penans in the village of Long Lamai in Sarawak, Malaysia

- A Socio-Technical Systems Innovation Approach of TRIZ was adopted in developing the Oroo' Language Emoji System for the Penans

- The modelling of complex systems that embed the socio-cultural context without compromising cultural value

Why emojis are significant to the indigenous people ?

Cave Art — ~38,000 BC

Egyptian Hieroglyphics — ~3200 BC

Aztec Symbology — ~1200 BC

Rebus — Medieval

Printing Printing Printing Printing Printing Printing — 1450 AD

~1800

~1900

1990

Emoji

1963 1999

Non-paper

Sumerian Cuneiform

Asian Calligraphy

Illuminated Manuscripts

Mass Production

Mass Media

WWW

Source: Hurlburt, G. (2018). Emoji: Lingua Franca or Passing Fancy? IT Professional, 20(5), 14-19.

Prehistorical Cave Painting from the Painted Cave, Niah, Sarawak
(Credit: Malaysian Travels)

- The natural pictographic and visual symbolic form of emoji allows it to be easily adapted to remote rural communities of indigenous people, particularly if it has been aligned with their cultural values.

Emoji Resembles The Form of A Natural Language

- Symbolic languages have been used by remote indigenous communities living in the rain forest of Borneo.

- **Penans** are one such nomadic community living in the Malaysian Borneo state of Sarawak who are still holding on to their visual symbol language called **Oroo'**

ISITI Living Laboratory, Long Lamai
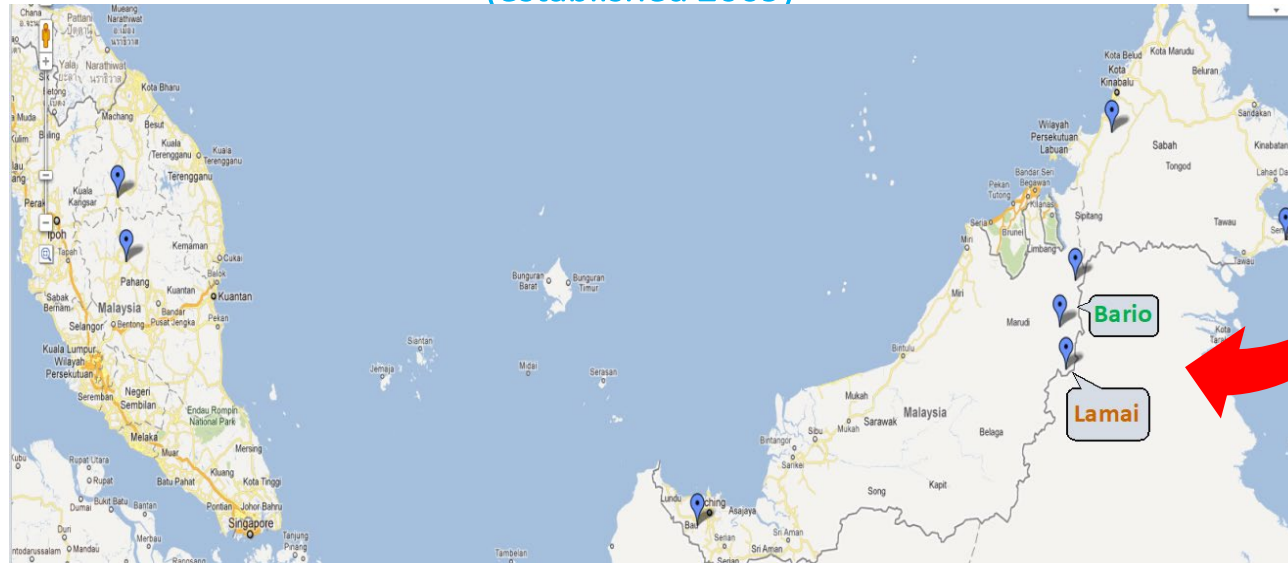
(established 2009)

Image Courtesy: Penan Archives, 2020

"There are fears of negative influences, but we have faith that we can manage these changes with clearly set rules. There are many ways to make a project successful so that it benefits the community. We are keen to learn new things"

Wilson Bian

(Long Lamai Headman)
Source: The Star, 5 March 2012

Oroo is a dynamic and live forest language, unlike the current emoji
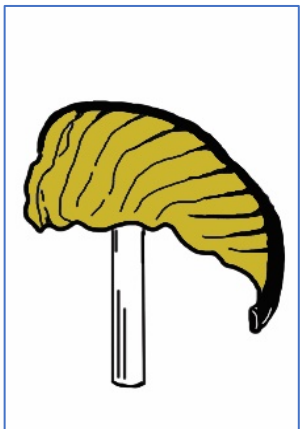
References:
Oroo' Tangibles: Tools for learning secret sign language of forest (Plimmer et al., 2015)
Creating New Signs to Revitalise the Sign Communication (Zaman & Winschiers-Theophilus, 2015)
Fostering Grassroots Innovation among Penans (George, Kulathuramaiyer, Bala, 2020)

The Penan Oroo' Visual Symbol

Actual Image of Oroo' Language Symbol	Vector Image	Graphic Symbol	Meaning
			I am going to the old hut which can be found as you walk along this direction

*image courtesy of Franklin George

The Challenges

Universal Emoji Code

Emoji have been described as "the world's first truly universal form of communication" yet the meaning you ascribe to them does depend on your culture.

Alex Rawlings *(Credit: BBC Future)*

The universal form of emoji code tends to post a challenge in sustaining local cultural identity

- Who created the emoji?

- Who is the targeted user?

Ambiguity

- Different cultural coding (different interpretation in different culture)

Thumps Up
Emoji 👍

You don't show this in the Middle East and Africa

Folded Hand
Emoji 🙏

Prayer?   Begging?   or Simply greeting?
Namaste! Sawadi-krap!

Angel
Emoji 😇

Good deed   or Simply going to heaven?

Ambiguity

- Different rendering platform

Shifting Indigenous Identity

Contradiction :
IF the use of new media become widely spread
THEN there arises an opportunity to interact in the global community
**BUT** this could potentially lead to an identity shift for the indigenous community

Common Problems in the Development of Indigenous Communication System

- Indigenous communication is evolutionary in its design.

- Knowledge embedded is preserved, handed down, and shared.

- It is an aspect of culture which can only be appreciated by its people who are the insiders in a social research context.

- A designer who is an outsider would have a problem in developing a computer-mediated communication system.

- This imposed the issues of etic, emic and pseudo-etic / Insider vs Outsider challenge

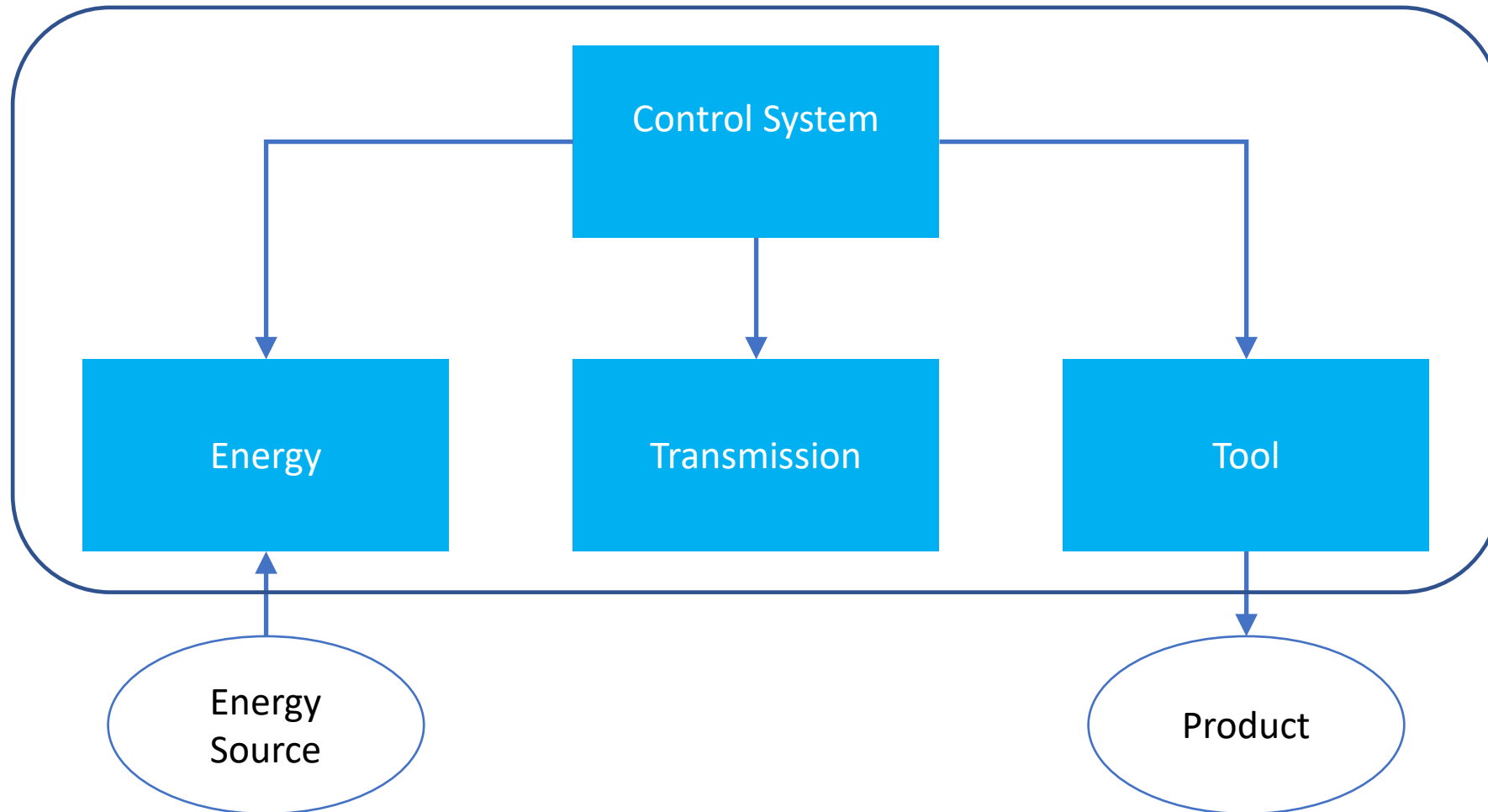# Functioning Model of Etic, Emic and Pseudo-Etic Relationship
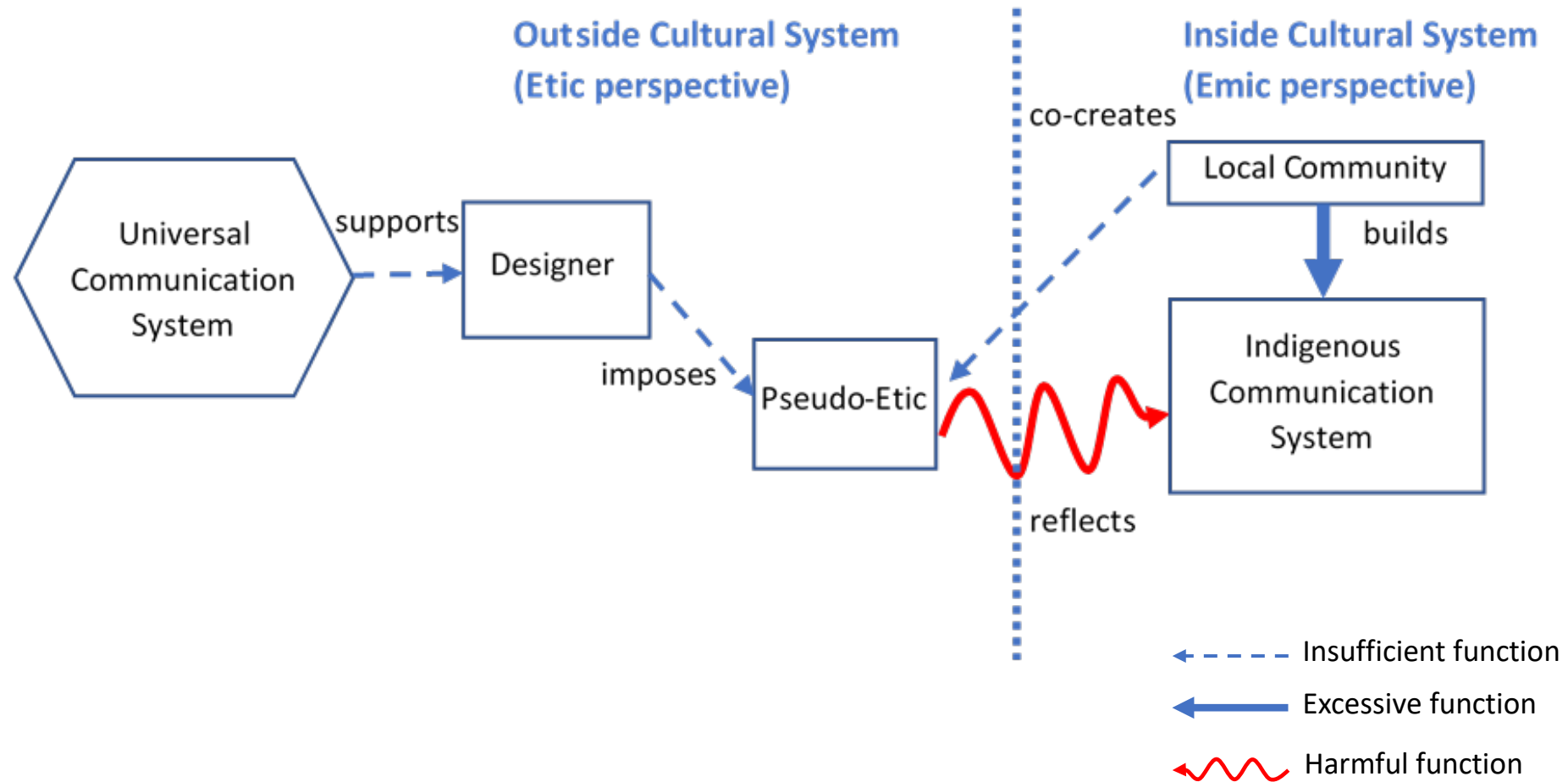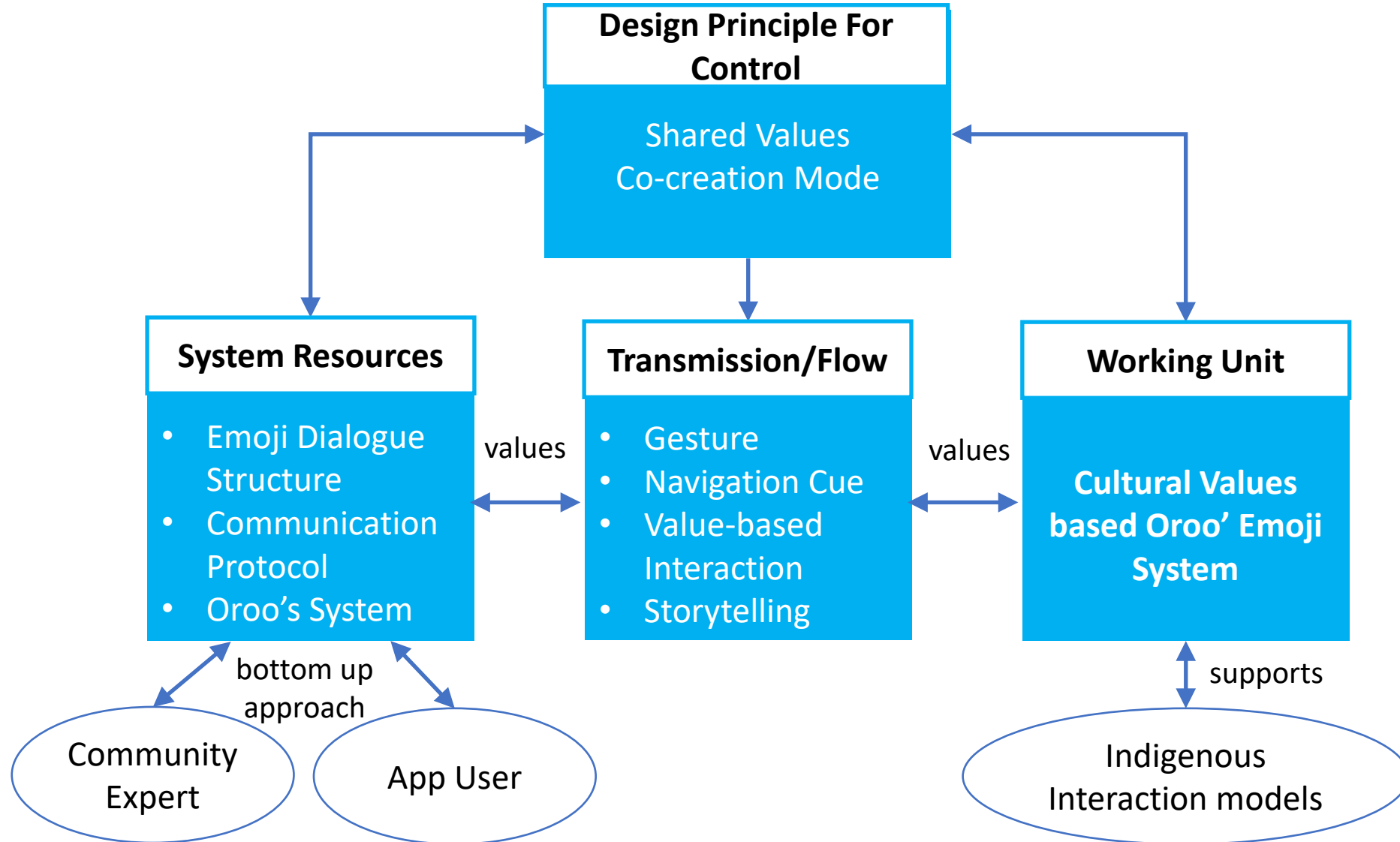
Our Solution

Cultural Values Based Emoji Messaging System

- Adoption of socio-technical systems innovation approach.

- Integrate the social and technical development of the indigenous community while sustaining cultural values at the same time.

- Theory of Inventive Problem Solving (TRIZ) used in the modelling of socio-technical systems.
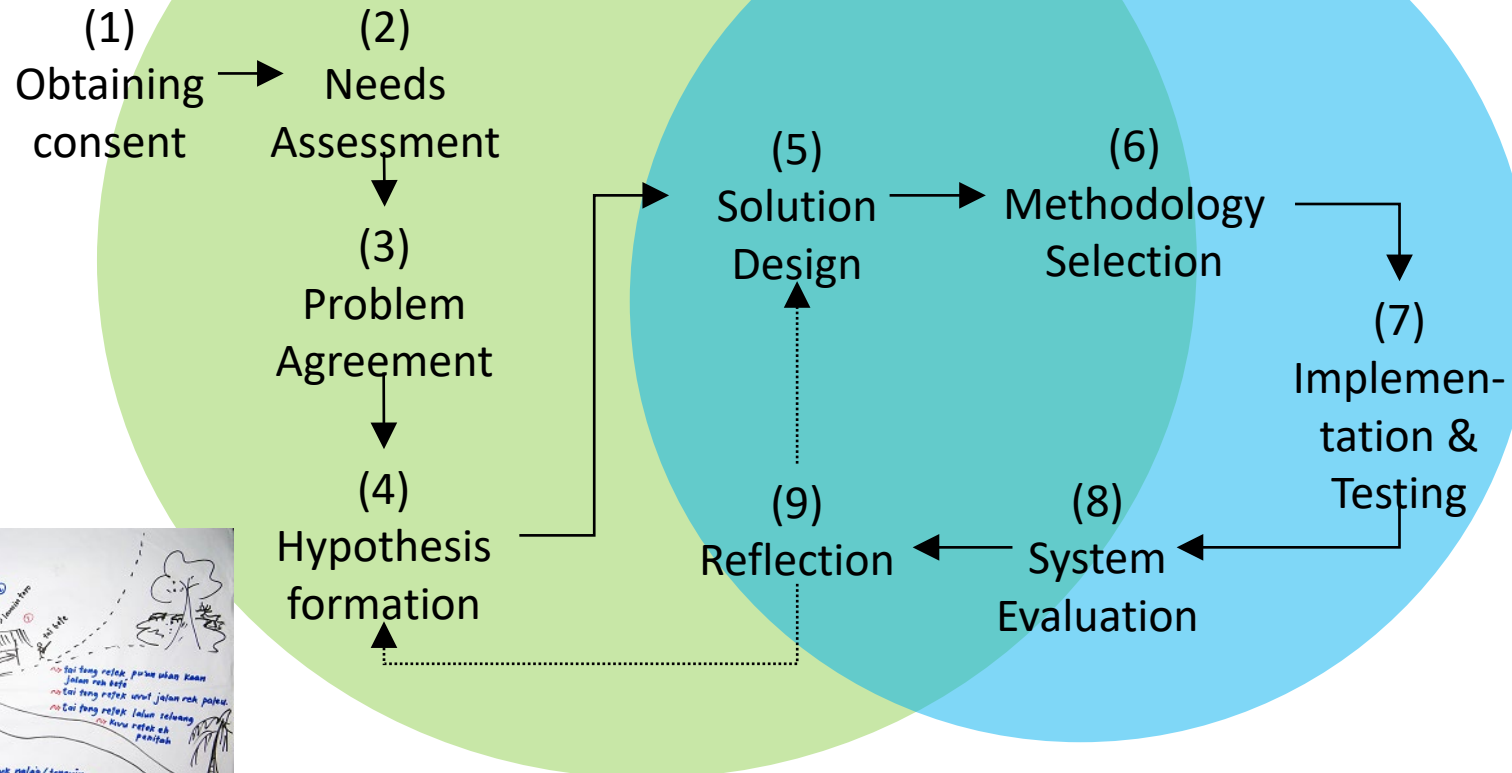
Typical TRIZ Engineering System Model

Cultural Values Based Emoji Messaging System Model

PRiSMA (Siew, Yeo & Zaman, 2013)

(1) Obtaining consent

(2) Needs Assessment

(3) Problem Agreement

(4) Hypothesis formation

(5) Solution Design

(6) Methodology Selection

(7) Implementation & Testing

(8) System Evaluation

(9) Reflection

Social change process

Software development process

In this project:

- We drawn the attention to the hegemonic problem of universal Unicode emoji design and its challenge to the sustainability of the indigenous cultural values.

- A socio-technical systems innovation model would be able to provide a space for the indigenous people
  to self create, own and use the emoji system to sustain their cultural value and identity from generation to generation.

- We go in line with the ICT4D 3.0 (Bon, 2014) world view:

  - **Breaking the monopolisation of emoji creation and selection through the dynamic homegrown bottom-up emoji approach.**

  - **Shaping technologies can be in accordance with cultural values and needs as opposed to allowing technologies to shape humans**.

Thank You