



Toyota... In Everyman Language

Richard Keegan

Supporting Welsh Government –
Toyota Lean Cluster Programme

About the Author

Richard Keegan was the manager of the Competitiveness Department in Enterprise Ireland. He was responsible for the creating the LEAN Business Offer, Benchmarking, The Green Business Offer and Environmental Supports. At the time of his retirement from Enterprise Ireland 1,153 company projects has been supported under the Lean Business Offer, with thousands of people trained in Lean, over a billion in recorded savings and even over 10% increase in employment for companies engaged in the lean process. At the time of writing he has visited the Toyota Deeside plant 86 times, bringing over 2,000 Irish people to look and see...

He is an adjunct associate professor with Trinity Business School, Trinity College Dublin where he focuses on Lean and Operational excellence. He has extensive practical experience in management roles in manufacturing, food and service businesses.

For over 20 years he has supported the EU Japan Centre for Industrial Co-operations World Class Manufacturing Missions.

He has written extensively on the topics related to competitiveness building, most notably

- Applied Benchmarking for Competitiveness
- Becoming LEAN
- Becoming a Lean Service Business
- The Five Rings of Lean Business Excellence
- DigitaLean (co-authored with Heiko Gierhardt (JLR) and Stefan Schmidt (BMW))

He also likes to ride motorcycles...a lot.

This work has been written to support the Welsh Government Toyota Lean Cluster Programme to help drive the improvement of competitiveness of Welsh companies. It is shared freely. Any mistakes are those of the author.

Background

In the corner of a non-descript industrial estate in Deeside, North Wales sits the Toyota motor manufacturing (Deeside) UK engine plant. Here, a dedicated team produce 350-700 fully functioning engines – every day. Starting with raw aluminium they cast and machine heads and blocks, machine cranks, cams and con rods, to extreme levels of precision at world class standards of quality and efficiency – again and again. This “MAGIC” is done by Welsh, English and Scottish people, with only a very small number of Japanese liaison staff supporting the 500+ local members. The local members have taken the challenge to understand the Toyota Production System and the Toyota Way. They have suffered set backs and challenges on this journey. Business is never smooth but they have responded as a team to meet these challenges Together, constantly.

I first met them in 2008 when we invited Toyota to share their concepts at the Enterprise Ireland Lean conference. As we grew our relationship I was taken more and more into their fold – I believe I have met my “tribe”. Over the years we had 2,000 plus Irish people make the journey to Deeside, to hear and see and learn from the members in Toyota, using and developing the engine production process and developing the Toyota members. These Irish people had come to learn directly from Toyota, not how to make engines but how to develop their people and processes using what they could learn from Toyota. They had to make the step to understand what was being shown and how it could be used in their own businesses.

Over the years we have laughed and we have cried together when we lost a friend and TLMC member to cancer. We have worked and we have wondered and planned together. This booklet is my effort to share what I have learned in working with and observing the Toyota members at work and at play. Any mistakes made will be mine – but I will learn from them. I hope you do too!

Introduction – Using this material

The material is presented in a way to explain how and why Toyota works and why they do so. Key words and concepts are presented in the “Toyota” way and are then explained in normal language. The concepts are presented in a logical way, building up an understanding of the concepts and how and why they are used. It is designed to give you a basic understanding of the Why and How of Toyota, how they constantly move to develop themselves to be able to operate in an often Volatile, Uncertain, Complex and Ambiguous world. It is not a set of tools, they will be provided by the Toyota Lean Management Centre as part of Welsh Government Toyota Lean Cluster Programme.

The Toyota concepts and ideas are not being suggested as being immediately appropriate for you. What is appropriate for you will very much depend on your own company issues and challenges. What will be absolutely important for you is for you to try to understand the concepts and tools and work out how they can be applied usefully within your own business. The TLMC Members will be working alongside you to help translate the concepts and ideas into real working activity in your own business. The focus of the TLC Programme is to help you achieve improvements in your own business, with your own people and equipment, with the support of the experienced Toyota members.

Toyota Way – Who we are and how we are

Toyota had grown across the world and they had realised that there was a problem – people in other countries did not think the same way as they did. They realised that it was essential to share with overseas people how they thought and why they thought and acted as Toyota. This became known as the Toyota Way and was published in 2001. It is only 11 pages long but it captures and shares the drivers for Toyota. It can be summarised by two words:

Respect – Challenge

If you ever watched the Karate Kid or any of the Kung Fu movies you already know that simple things can often cover very deep subjects – “Wax On – Wax Off”, how to walk correctly – all carry deep meaning as you develop your understanding of the concepts and the practices. It is this necessary focus on the BASICS that is at the heart of the Toyota Way. It presents a “Reason” for the business – to do good for society and the “How we do things” for the business, their customers, suppliers and the wider community. It creates and shares the Bigger Purpose that Toyota as a group is working for. This bigger purpose is central to getting a group of people to be able to work together. Everyone knows WHAT they are trying to do, WHY they are doing it and HOW they are going to get it done. We say the modern generation have this need to be part of something bigger than themselves, well, in Toyota, that has always been a key driver for all Members – to be part of what we are now calling:

Societally Significant Activities – such as this Welsh Government and Toyota working together with Welsh businesses and people to drive capability and competitiveness by sharing ideas and practices, working together for the better future of Wales.

Respect and Challenge

Respect is at the foundation of how Toyota chooses to engage with its people. It is also fundamental to how its people engage with Toyota. Mutual respect forms the basis for engagement and interaction. All are Members, all working for the company and for each other.

Challenge provides the basis to accept that there may always be opportunities to be better. By accepting “Challenge” as a core principle it means that all things are open to improvement. This opportunity to improve drives Toyota to build the capability, skill and will of all its Members to be able to challenge, to be able to look for and find problems, to be able to create and deliver improvements, constantly.

HOSHIN KANRI – Sharing the Big What to Focus on

The Toyota Way defines the very high level thinking of the company to deliver on its Vision and Mission. Each year the company defines its annual strategic direction and focus. This is shared using Hoshin Kanri-Strategy Deployment. Each region, country, factory and department creates its own strategic plan to support achievement of the global Toyota objectives. Each factory and department take ownership of creating and delivering on their plan, contributing to the big goal. The Hoshin Kanri approach helps create Mass Buy In across the business, all working together, towards a shared common goal. At the level of the individual department this can be very practical and specific – how do we plan to improve quality, cost, time, movement or some other characteristic.

GEMBA – The Work Place – Where the Value is added

The Gemba, the workplace is where the action happens. In Toyota, the gemba can be the manufacturing floor, the foundry, the office or the warehouse/shipping areas. It is anywhere value is created or absorbed. By talking about “Going to the Gemba” Toyota mean going to where the action happens, to see for yourself. This can be very powerful, for many reasons. If Members see the managers on the shop floor they know that their workplace is important. When it becomes normal to see managers “on the floor”, not just in a crisis situation, Members can become comfortable in engaging with them, building a feeling of a team.

In typical Japanese fashion there is another “level” to “gemba”, covered by the three Japanese words: Genchi, Genbutsu, Genin

Genchi – Go to the real place

Genbutsu – Look at the real thing

Genin – Talk to the real person

Engagement between managers and operators leads to a shared ownership and commitment to fix and improve, together.

SHOKUBA RYOKU – Power of a Good Team

A significant driver for going to the GEMBA is to build a good team. If people are used to engaging and working together, on shared issues, it naturally builds strong teamwork. Everyone has been through the challenge and fixed things together.

GEMBA RYOKU – Wisdom of the Work Place

Toyota believe in their people. They invest in developing them and their ability to identify and fix problems. This of course leads them to believing in the Wisdom of the Work Place. The old adage “the operator knows best” is translated into Toyota as the “workplace has wisdom”. Leaders listen, support and develop the creation, capture and dissemination of wisdom.

MONOZUKURI – Excellence of Making Things

Japan has been following a strategy of creating real excellence in manufacturing. This requires deep understanding of the process and how to achieve extreme levels of performance. It is essential to know the detail of a process if you want to achieve and sustain high levels of delivery. In practice this means capturing the detail of the work, the knack points and the issues that may arise.

What to do	How to do it	Why this way	What happens if you don't do it right
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By capturing this level of detail a company creates a foundation to achieve excellence – MONOZUKURI.

HITO ZUKURI – Make the Person!

Japanese has a tendency to sue different characters to create meaningful words or concepts. This “HITO ZUKURI” is a Keeganism, it is not real Japanese, but it is my effort to describe what Toyota do to build the capability and capacity of their people. Toyota have created a very detailed member development programme. They have identified What their people need to know and how to transfer this knowledge to their people. The knowledge and skills of Members needs will obviously develop as their Members develop.

Member Development Chart

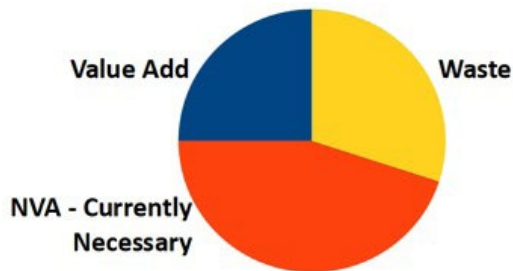


YAMAZUMI - Steps in doing the job

We have talked about the GEMBA and leaders going to see the workplace. At the workplace our people need to know what they have to do. In Toyota this is known as a Yamazumi, the list of actions that need to be done to get the job done. In very simple terms it is a list of all the steps to do the work. You will learn about the Job Element Sheet and the other tools that are developed from the Yamazumi when you engage with the TLMC members.

The Yamazumi helps focus attention on what actually happens in the workplace. Obviously once you have a list of steps you can easily move to identify which steps are adding value, which are not adding any value and which steps are not adding value but “have” to be done.

VA/NVA/NVABN

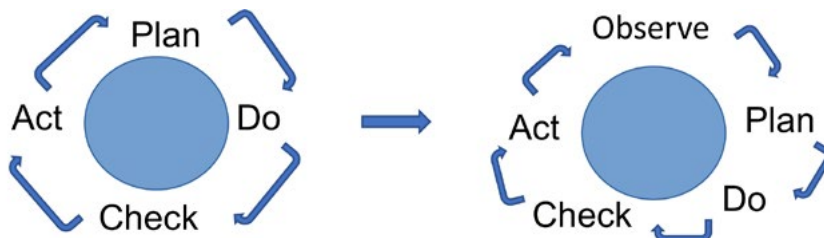


Value Added / Non Value Added / Non Value Added but Currently Necessary

Once you see this picture, with the Yamazumi list, your focus is about how to remove waste and increase value added time and effort.

PDCA - Plan Do Check Act

Toyota decide to constantly challenge what they do. Each member is expected and supported to identify waste and improve the process. This known as the PDCA cycle. Recently Toyota have added Observe to the PDCA cycle, effectively stating what has been done for a long time:



Observe - Go Look and See what is happening

Plan - What are we going to do to improve

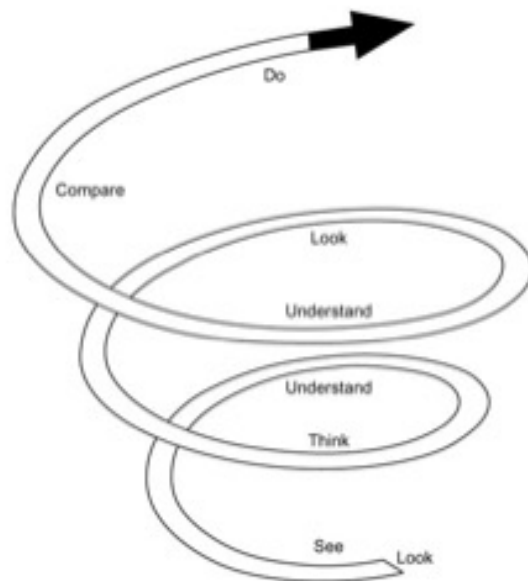
Do - Make a change, try something

Check - capture the facts and data, see if we achieved improvement

Act - Did it make the difference, What's Next?

In my trying to deploy Lean in businesses I developed LSUTD – Look, See, Understand, Think and Do as part of a spiral of improvement.

SPIRAL of IMPROVEMENT



Look – Go to the place and look at what is happening

See – See what is actually happening, not what you think is happening

Understand – Take the time to understand the problem

Think – What can we do to improve things

Do – Take action, try it, if it doesn't work you can always go back!

Standard Operating Procedures (SOPs) – How to do the job

If we have worked out the steps needed to do the job and are working to:

- a) Find ways to increase Value Add by reducing waste
- b) Find better ways to do the job.

In the present we need to be able to say clearly how the job should be done. This is important for the Member, the worker, so that they know what is expected of them. It is equally important for the manager, so that they can easily see if the work is being done correctly. The current method is known as Standard Operating Procedure. In Toyota the saying goes: "It is the job of the management to CREATE the SOP and it is the job of the Member to BREAK the SOP". In Toyota the "BREAK" refers to finding a better way to do the job. When a member finds a better way, they share this with their team leader and together they discuss with relevant people such as other shifts. If acceptable they will try the new way and verify if it is actually better. If it is better then it becomes the way of doing things, adopted by all members, across all shifts, until a better way is found. This happens constantly, making, breaking and remaking the SOP.

GOLDFISH MENTALITY – The Mind of a 4 Year Old

I use the "Goldfish Mentality" to describe how the members in Toyota keep trying to improve each of their processes. The tools of TPS help the member to look at the process with fresh eyes, each time they look to improve a process. The methods and tools give members the ability to look afresh, just like the goldfish sees the world anew each circuit of their bowl. But, they also work to build the "mindset of the 4 year old" into all their

Members and leaders. At the time of writing I am lucky enough to have a 4 year old grandson, who has a limitless number of questions and an insatiable interest in everything. He asks questions to find out, to get to know what things are and what they do and how they do it. Toyota build this "4 year old" interest among all their members, constantly asking why and even "Why Not?".

FACT AND DATA – Opinions don't count!

Toyota focus on capturing and using Fact and Data. They want to know the actual situation and not base their actions on people's opinions of the reality – no matter how high up in the organisation. The facts from a process are made clear and visible. The level of performance, defects, waste, downtime are all made highly visible. Nobody is trying to hide the reality. No one is afraid to show what is actually happening, because it is a joint effort to do things better. This visibility of real facts and data are then used to drive the daily management, the daily improvement of processes and the longer term plant performance. FACT trumps opinion – It is much better to say "I don't know" than it is to say "I think X is". This simple focus on facts drives Members and managers to the Gemba, to see the real thing.

PRACTICAL PROBLEM SOLVING, KAIZEN and Break Through Innovation

Many people think that Toyota is focused only on Kaizen, constant small improvements. This is true but it is not the full story. The graphic represents a more full picture of the Toyota approach to improving, linked to standards and Real Data.

Practical Problem Solving (PPS) is used when a process is operating below the current expected standard performance in an effort to achieve the standard by identifying and addressing any issues that prevent this. This effort is based on the belief that the people are able to meet the standard and that the process is capable of meeting the standard, too. Kaizen is used to improve the standard. Kaizen activity is used to make the standard better, PPS being applied again to stabilise performance at the new level. All manufacturing processes are inherently unstable, PPS seeks to address these instabilities, allowing the team to deliver regularly, without fuss to the standard performance level. The instabilities can and do arise from issues with machines, materials, processes, methods or people skills levels.

PPS and Kaizen are focused around the current norms. There is also a constant focus on research, development and innovation to create the opportunities for breakthroughs in terms of what can be delivered. This combination of a focus on the present and the future ensures that processes are constantly being challenged to perform at current and evolving levels of world class practice and performance.

Quality Circle Activity and the A3

To support Members in the improvement process and to help build the experience and understanding of Members and Team Leaders, Toyota use the Quality Circle concept along with A3's to make the activity visible and easily understood. The Quality Circle activities typically span improvement projects over a 4-6 month period. Members choose their topic, usually aligned with at least one of that year's Hoshin objectives and work to capture the current situation with real fact and data, identify what they think may be a solution and move towards implementing the solution and capturing the impacts of the activity. One key but central impact is that of member Development – what did our people learn and how did they grow. The use of a standardised A3 project format helps build both sharing, structure but also visibility between Members and sometimes a degree of competition, too.

JISHUKEN – Improvement is for Leaders too!

Toyota believe strongly in "walking the walk". The managers and leaders are expected to do what they say. Part of ensuring this happens is the Jishuken process, where senior

managers engage in shop floor improvement activities, doing TPS to build their own expertise but also to clearly demonstrate to all Members that improvement is a shared, common, core activity.

YOKOTEN – Spreading the Learnings Made

To me, Toyota is a pure example of what I call “Swarm” mentality. Everyone is expected and encouraged and supported to Look, at and See wastes, to Understand how they arise, to Think about how to make things better and then to DO something to make it better. Each and every member is a part of this process, part of this swarm of improvers. But, the real benefit comes to the organisation when the SWARM shares what each element has learned. This sharing of learning builds an incredible store of creativity and energy to continue improving right across the organisation.

MUDA, MURA, MURI – Waste, Unevenness, Overburden

Team Members are trained to be able to look for and see wastes, in an effort to do only value adding work. Three bodies of waste are typically tackled, one by the shop floor Members and two by management.

MUDA means waste or uselessness and is the opposite of Value. Members are shown how to understand the process mapping, physical movements, stoppages and other ways their work can be interrupted. They are also shown and developed in tackling these shop floor, daily work wastes. They are even given the opportunity during the weekly work cycle to address them and also given the opportunity to earn some overtime by addressing improvement activities.

MURA – Unevenness, is where a work load can be uneven, leading to Members having too much work to do or too little, in a cycle or a day. Toyota use the concept of HEIJUNKA (Levelling) to ensure that members work is as even as possible over the day, month and year. Toyota want their Members to work, but not be burnt out with Peaks of activity that are beyond their ability to absorb.

MURI – Overburden. Toyota is critically aware of the physiological and psychological impacts on members of working in a high pressure environment. They take a lot of effort to ensure that staff have a challenging but not a “breaking” workload. The concept of a “Man Sized Job” is used to define and protect Members in terms of what they are asked to do, based on respect for the individual. Toyota believe it is equally dis-respectful to have a Member with little or no work to do during a daily work cycle.

STABILITY

One of the biggest disturbances in any manufacturing environment is instability. This is most usually seen as machine break-downs, where members cannot do their work because of a machine or tool failure. To tackle this, Toyota focus heavily on developing their preventive maintenance skills and procedures, seeking to ensure that machines always start when required and will do their job, when needed.

But stability spreads throughout the processes – parts supply, people availability, order demand can all contribute to instability, let alone the vagaries of the market, changes in regional politics or such events as the pandemic. Toyota chase the causes of instability relentlessly, to assure smooth running of the operation. They identify the causes of instability that they can influence and take countermeasures to reduce or eradicate the impacts.

KAMISHABI CARDS – T-Cards – Helping to “NOT FORGET”

There is so much going on in any business that it is very difficult to remember everything that needs to be done. To help remember all these things, Toyota use a very simple “T-Card” system. Each card has a task on it and the cards are allocated across shifts, days, weeks,

months or yearly. When the task has been done the card is replaced in the rack, but turned around. To expose a “green-job done” colour. This very simple colour coding makes the jobs highly visible and not easily forgotten.

The system is used for line checks, maintenance and also at operator level maintenance, not just the professional maintenance team. Most interestingly, the system is used for managers as part of the managers Standard Work process, managers can see what they have to do this day or week and whether they are on top or behind the jobs that need to be done that can so easily be forgotten – one system, used right across the business, adjusted and tuned to the specifics of the work.

WABI SABI – Nothing lasts, is finished or perfect

Toyota don't talk about Wabi Sabi, but it is in everything they do. They believe there is always something else they can do to improve. They are always working to be better tomorrow than they are today. They believe that if they don't keep moving forward, putting energy into what they do that it will not last, so they keep on keeping on – constantly.

Expect Accept Respect

Toyota have taken the time to understand, define and say what they expect of managers, Members and suppliers. They clearly state what they accept and will work with people inside and outside the organisation to achieve this. All their activity is based on fundamental respect – for people as individuals, nature in all its aspects and for society as a whole, and of course, Challenge – Better tomorrow than today.

Welsh Government – Toyota Lean Cluster Programme Offer

The Welsh Government has partnered with Toyota and their Toyota Lean management Centre to provide direct support to Welsh businesses who want to drive the competitiveness of their business using Lean thinking. The offer is known as the Toyota Lean Cluster (TLC) Programme and builds upon the successful Irish Lean business Offer.

The TLC programme combines on-site training and exposure to lean tools and thinking in the Toyota Deeside engine manufacturing factory. Also, Toyota members visit participating companies and help them to apply the basic tools that they have been exposed to within their own operations, tackling issues and problems that the individual companies have identified as being important to them. The focus of the programme is to help build the capability and capacity of the participating company staff to identify and fix issues within their businesses, using lean thinking and tools. Participants return to the Deeside engine plant two further times to deepen their understanding of the concepts and how they are deployed, and to learn how they can be used even more effectively within their own operations.

The Welsh Government Toyota Lean Cluster Programme also seeks to create local expertise through the use of local networks of participating companies. These network sessions will be supported by Toyota members and will help to build the local resource through supporting and facilitating networking between participants.

The core mission of the Welsh Government Toyota Lean Cluster Programme is to work in partnership with participating companies to develop a sustainable competitive advantage leading to a significant increase in profitable sales, exports and employment. Lean tools and techniques are helping companies across the globe to address competitiveness issues within their business, building the capability of their people to identify issues and improve their operations. The TLC Programme is designed to encourage Welsh companies to adopt Lean business principles in their organisation to increase competitiveness. The programme is based on 3 levels of intensity of interaction with clients.

LeanStart: focus on value

Training and exposure to Toyota Lean tools will be delivered in the Toyota Engine plant in Deeside over a series of three days, during the course of the programme. A short in-company assignment by a Toyota Lean Management Centre Member, which will introduce Lean principles in the participating company and complete a specific improvement project. Assignments typically extend over eight weeks. Participants will be invited to join a local Lean network.

LeanPlus: performance improvement

A medium-scale business process improvement project by an external business development consultant, which will result in sustained use by the company of Lean techniques and related methodologies and will achieve significant measurable gains in company capabilities and competitiveness. Assignments will typically be not less than 6 months duration.

Welsh Government – Toyota Lean Cluster Programme

Lean Programme	Project Summary	Key outcomes	Eligible cost elements	Client Project cost	Welsh Government grant
Lean-Start	<p>Short cost-reduction project supported by Toyota Lean management Centre Member.</p> <p>Introducing basic Lean principles & techniques in Toyota Deeside Engine Plant-three days over course of programme.</p> <p>Assignment duration ~ 8-12 weeks.</p>	<p>Improvement targets achieved.</p> <p>'Lean' approach successfully piloted.</p> <p>Foundation for further lean or productivity project.</p>			
Lean-Plus	<p>Medium-scale business improvement project (s) supported by Toyota Lean Management Centre Member.</p> <p>Significant learning and use by company of Lean techniques, and/or other proven business process improvement methodology which can deliver cost reduction.</p> <p>Typically 30 day (in company) assignment days over 6-9 month period.</p>	<p>Significant improvement targets achieved.</p> <p>Embedding of business improvement culture and lean techniques; cohort of trained staff.</p> <p>Programme to pursue company-wide improvement.</p>			



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